THOMAS OLANDER

Trends in Linguistics

Balto-Slavic Accentual Mobility

MOUTON DE GRUYTER

Balto-Slavic Accentual Mobility

Trends in Linguistics

Studies and Monographs 199

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Mouton de Gruyter
Berlin · New York

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by
Thomas Olander

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Mouton de Gruyter (formerly Mouton, The Hague)
is a Division of Walter de Gruyter GmbH & Co. KG, Berlin.

The publication of this volume was generously supported
by the *Viggo Brøndal og hustrus fond*.

♾ Printed on acid-free paper which falls within the guidelines
of the ANSI to ensure permanence and durability.

Library of Congress Cataloging-in-Publication Data

Olander, Thomas, 1974−
Balto-Slavic accentual mobility / by Thomas Olander.
p. cm. − (Trends in linguistics. Studies and monographs ; 199)
Includes bibliographical references and index.
ISBN 978-3-11-020397-4 (hardcover : alk. paper)
1. Slavic languages − Accents and accentuation. 2. Baltic languages − Accents and accentuation. 3. Indo-European languages − Accents and accentuation. I. Title.
PG81.O43 2009
491.8'0416−dc22

2008049994

ISBN 978-3-11-020397-4
ISSN 1861-4302

Bibliographic information published by the Deutsche Nationalbibliothek

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the Internet at http://dnb.d-nb.de.

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Cover design: Christopher Schneider, Laufen.
Printed in Germany.

Preface

This book is a revised, updated and elaborated version of my Ph.D. dissertation, *Accentual mobility: the prehistory of the Balto-Slavic mobile accent paradigms*, which I defended at the University of Copenhagen on 26 May 2006. The most important changes are found in Chapter 4, "The Mobility Law", which includes a discussion of Henning Andersen's recent contributions to the question of the Balto-Slavic mobile accent paradigms. The Postscript deals with Frederik Kortlandt's latest publications on Balto-Slavic accentology. I owe special thanks to Andersen and Kortlandt for their willingness to discuss these matters with me.

While working on this book, I have received help from a number of people: Rune Asmussen, Lars Brink, Miguel Carrasquer Vidal, Rick Derksen, Rainer Fecht, Ronald F. Feldstein, Mikkel Lotz Felter, Marc L. Greenberg, Nina Grønnum, Christoph Harbsmeier, Michael Harbsmeier, Pepijn Hendriks, George Hinge, Wolfgang Hock, Adam Hyllested, Anders Richardt Jørgensen, Mate Kapović, Ronald I. Kim, Sofie Kluge, Pelle O. Larsen, Jenny Helena Larsson, Benedicte Nielsen, Jens Nørgård-Sørensen, Marianne Olander, Ursula Olander, Birgit Anette Olsen, Jørn Ivar Qvonje, Jens Elmegård Rasmussen, Oliver B. Simkin, Martin Slaaby-Larsen, Lars Steensland, Roman Sukač, Alexandra Ter-Avanesova, Peter Vejleskov and Werner Winter. I am grateful to each of them.

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Abbreviations and symbols

acc.	accusative
act.	active
adess.	adessive
adj.	adjective
adv.	adverb
all.	allative
aor.	aorist
AP	accent paradigm
ARM	Armenian
BG	Bulgarian
BRU	Belorussian
BS	Balto-Slavic
ČAK	Čakavian
CS	Common Slavic
CZ	Czech
dat.	dative
def.	definite
dial.	dialect(al)
f(em).	feminine
fut.	future
GE	Germanic
gen.	genitive
GK	Greek (Attic)
GO	Gothic
Hom.	Homer(ic)
IE	Indo-European
ill.	illative
indecl.	indeclinable
inf.	infinitive
inj.	injunctive
instr.	instrumental
impf.	imperfect
ipv.	imperative
KAJ	Kajkavian
LA	Latin
LI	Lithuanian
loc.	locative
LV	Latvian
m(asc).	masculine
MHG	Middle High German
n(eut).	neuter
nom.	nominative
num.	numeral
OCS	Old Church Slavonic
OENG	Old English
OHG	Old High German
ONOR	Old Norse
OPR	Old Prussian
opt.	optative
OSAX	Old Saxon
pass.	passive
PBS	Proto-Balto-Slavic
pf.	perfect
PGE	Proto-Germanic
PGK	Proto-Greek
PIE	Proto-Indo-European
PII	Proto-Indo-Iranian
pl.	plural
PO	Polish
prs.	present
prt.	preterite
ps.	person
PS	Proto-Slavic
ptc.	participle
refl.	reflexive
RU	Russian
sg.	singular
sigm.	sigmatic
SKT	Sanskrit
SLK	Slovak
SLN	Slovene
SLNC	Slovincian
ŠTK	Štokavian
them.	thematic
UKR	Ukrainian
US	Upper Sorbian
VED	Vedic Sanskrit (Ṛgveda)

Symbols

C any consonant (not including laryngeals)
C$_n$ *n* or more consonants (not including laryngeals)
D any voiced stop; when appropriate: any voiced dental
ə any vocalic laryngeal (*ə*$_1$ *ə*$_2$ *ə*$_3$)
H high tone
h any consonantal laryngeal (*h*$_1$ *h*$_2$ *h*$_3$)
L low tone
N any nasal
R any resonant consonant (liquid, nasal or semivowel); when appropriate: any sonorant (liquid or nasal)
T any voiceless stop; when appropriate: any voiceless dental
U̯ any semivowel (*i̯ u̯*)
V any vowel
μ mora
word boundary
† non-existing form
>, < phonetic change
→, ← morphological change
[ ] phonetic representation
/ / phonological/phonemic representation
< > graphemic representation

Prosodic diacritics used in reconstructions

ˈx Proto-Balto-Slavic, Proto-Slavic: accent (high pitch)
ˌx Proto-Balto-Slavic, Proto-Slavic: automatic ictus on first syllable of unaccented phonological word
x́ Proto-Indo-European: accent (high pitch); Common Slavic: long neoacute tone
x̀ Common Slavic: short neoacute tone, accented short final syllable
x̋ Common Slavic: long acute tone
x̏ Common Slavic: initial short syllable of unaccented phonological word (traditionally, "short circumflex tone")
x̂ Common Slavic: initial long syllable of unaccented phonological word (traditionally, "long circumflex tone")
x̃ Proto-Indo-European: traditionally, "circumflex" syllable
xʔ Proto-Balto-Slavic: glottalisation (or similar prosodic marking)

Chapter 1
Introduction

1. The problem

In some Baltic and Slavic languages certain words are characterised by a remarkable alternation between root-accented and desinentially accented forms.[1] For example, the word for 'head' is declined in the following way in Lithuanian and Russian, a Baltic and a Slavic language respectively:

Table 1. Declension of the word for 'head' in Lithuanian and Russian

	SINGULAR		PLURAL	
	LI	RU	LI	RU
nom.	*galvà*	*golová*	*gálvos*	*gólovy*
acc.	*gálvą*	*gólovu*	*gálvas*	*gólovy*
gen.	*galvõs*	*golový*	*galvų̃*	*golóv*
dat.	*gálvai*	*golové*	*galvóms*	*golovám*
instr.	*gálva*	*golovój*(*u*)	*galvomìs*	*golovámi*
loc.	*galvojè*	*golové*	*galvosè*	*golováx*

Words of all stem-classes may belong to these so-called "mobile" accent paradigms in Baltic and Slavic. The purpose of the present study is to determine the Proto-Indo-European origin of the Baltic and Slavic mobile accent paradigms.

The prosodic system of the Indo-European proto-language is preserved more or less directly in Vedic Sanskrit and Ancient Greek. These languages show no traces of accentual mobility in the vowel stems. Thus, Vedic and Greek vowel stems that correspond etymologically to Baltic and Slavic accentually mobile words usually have columnar accent on the first syllable of the desinence, e.g. GK nom. sg. *φυγή* 'flight', acc. *φυγήν*, gen. *φυγῆς*, dat. *φυγῇ* etc. (columnar accent), and VED nom. sg. *jihvā́* 'tongue', acc. *jihvā́m*, gen.-abl. *jihvā́yāḥ*, dat. *jihvā́yai* etc. (columnar accent), corresponding to the accent type LI *algà* 'salary', *algą̃*, *algõs*, *algai* etc. (mobile accent).

In Vedic and Greek monosyllabic consonant stems, on the other hand, we do find an accentual mobility similar to that of Baltic and Slavic, e.g. VED

1. For the terminology see § 3 below.

nom. sg. *pā́t* 'foot', acc. *pā́dam*, gen.-abl. *padáḥ*, dat. *padé* etc.; GK nom. sg. *πούς* 'foot', acc. *πόδα*, gen. *ποδός*, dat. *ποδί* etc. Finally, a certain type of consonant stems found in Vedic and Greek plays an important role in the discussion of the origin of the Balto-Slavic accentual mobility. This type has columnar accent from a phonological point of view (accent on the same syllable counting from the beginning of the word) but is morphologically mobile (accent on the suffix alternating with accent on the ending). It may be exemplified by VED nom. sg. *duhitā́* 'daughter', acc. *duhitáram*, gen.-abl. *duhitúḥ*, dat. *duhitré* etc. We shall return to this type below in this section.

In order to give a historical explanation of the relationship between the mobility of Balto-Slavic vowel stems and the immobility of Vedic and Greek vowel stems, it has to be ascertained whether the Balto-Slavic accentual mobility in vowel stems represents an archaism or an innovation compared to the Vedic-Greek immobility in these stems, i.e. the Proto-Indo-European point of departure has to be established. The answers offered to this question by various scholars take quite different directions.

Some authors consider the mobility of the Balto-Slavic vowel stems to be inherited from the Indo-European proto-language. The immobility of Vedic and Greek vowel stems, according to this view, is the result of a secondary generalisation of columnar accent on the expense of inherited mobility. Balto-Slavic, in showing both columnar and mobile accentuation of words of all stem-classes, directly reflects the Proto-Indo-European state of affairs. The accent curves of the Balto-Slavic mobile paradigms basically preserve the accent curves these paradigms had in the proto-language.

Most scholars, however, reject the priority of the Balto-Slavic accentuation system over the Vedic-Greek one. Some assume that the accentual mobility of consonant stems like the word for 'foot' given above was copied by the vowel stems in Balto-Slavic. Others propose an accent retraction from medial syllables in consonant stems like the word for 'daughter', i.e. pre-PBS acc. sg. **duk*ˈ*terin* > LI *dùkterį* (cf., with accent on the final syllable, pre-PBS nom. sg. **duk*ˈ*tē* > LI *duktẽ́*), and assume that this new mobility was imitated by the desinentially accented vowel stems in Balto-Slavic. According to these scholars, the Proto-Indo-European accentuation system is most faithfully preserved in Vedic and Greek, whereas the mobility of the Balto-Slavic vowel stems has arisen as the result of an analogical imitation of the accent curves of the consonant stems, in one way or another.

Finally, a third group of scholars, who likewise consider the Vedic-Greek accentuation system to be original, assume that the Balto-Slavic mobility is determined by the phonological properties of the desinential syllables. Desinences of a certain type are accented, desinences of another type are unac-

cented in Balto-Slavic. Most of these scholars assume that certain desinences have attracted the accent from a preceding syllable. It has also been proposed that the accent curves of the mobile accent paradigms are determined by a Balto-Slavic accent retraction from desinences of a certain type.

In this study a hypothesis of the latter type is advanced. As we shall see, there is reason to believe that at a pre-stage of Proto-Balto-Slavic where the Proto-Indo-European laryngeals had disappeared, words originally accented on a final short or hiatal structure became unaccented. Assuming that short vowels had a high tone (accent) on the only mora, and hiatal structures had a high tone on the last mora, we may say that a high tone became low in the last mora of the phonological word:

$\acute{\mu} > [-\text{high}] / _\ C_0\#$

Following this introductory chapter (Ch. 1), the prosodic system, the properties of word-final structures and the paradigmatic accentuation system of the Indo-European proto-language are reconstructed through analyses of the relevant parts of the Indo-Iranian, Greek and Germanic linguistic systems (Ch. 2). Then the Proto-Balto-Slavic prosodic system and paradigmatic accentuation system are established on the basis of analyses of the Baltic and Slavic languages (Ch. 3). The proposed hypothesis is tested through a comparison between the reconstructed Proto-Indo-European and Proto-Balto-Slavic systems (Ch. 4), followed by a general conclusion (Ch. 5).

2. Methodological considerations

The theoretical basis of the present work is the comparative method. In the analyses presented here, like in other works where the comparative method is applied, I shall try to find a balance in the plausibility of the sound laws and analogies invoked to explain the data. It is important to keep in mind the general and systematic character of sound laws in contrast to analogical changes, where each case requires a separate explanation.

No attempts will be made at applying theoretical frameworks like optimality theory or "brackets-and-edges" theory to the material.[2] While such frameworks may lead to valuable insights into HOW and WHY certain developments take place, their contribution to the endeavour of the comparative

2. Considerably more weight is attached to theory in works like Bethin (1998) and Kim (2002), which deal with subjects that are also treated in this study.

method to establish WHAT has happened, which is the primary concern of the present study, seems to be rather limited.

Reconstructing the prosody of a language presents certain problems that are not encountered in segmental reconstruction. Prosody may be subject to systemic restructurings of a kind that is not found on the segmental level. For example, the Proto-Slavic free accent has vanished entirely in Polish, where it has only left a few traces on the segmental level. Moreover, the usual problem of distinguishing between archaisms and innovations is particularly prominent in the reconstruction of prosodic characteristics, which often operate on a binary scale. It frequently happens that we have to pick out as original one of two different accentuations of the same word in related languages or dialects.[3] Seen in isolation there is no way to decide whether the desinential accentuation of VED *bāhú-* is less or more original than the root-accentuation of the corresponding Greek word, *πῆχυς*. The problem may often be solved when the words in question are viewed in the context of the system to which they belong. In the example VED *bāhú-* vs. GK *πῆχυς*, a closer examination of the systems in which the words occur reveals that in Greek all nominal *u*-stems are root-accented, while in Vedic there is no synchronically transparent principle of distribution of root-accentuation and desinential accentuation in *u*-stems, which makes it plausible that the Vedic word has preserved the original accentuation.[4]

As will be evident from § 4 below, theories about the development of the Baltic and Slavic accentuation systems are numerous and divergent. The diversity of opinions is obviously connected with the fact that the subject is particularly complicated.[5] A number of unknown factors render possible several different hypotheses about the development of the Proto-Indo-European accentuation system in the prehistory of the Baltic and Slavic daughter languages. I have made the methodological choice to attach considerable weight to simplicity of both the synchronic prosodic systems reconstructed for various language stages and of the phonetic and analogical developments that are assumed to lead to the transition of one system to another. My approach is therefore very different from that of scholars like Kortlandt, who proposes synchronic systems and diachronic developments of high complexity; see § 4 and § 5 below. The practical effects of the different approaches are per-

3. Cf. Stang (1957 [1965]: 3).
4. Cf. Lubotsky (1988: 15).
5. Micklesen (1995: 81) refers to Balto-Slavic accentology as "an intellectual problem of considerable proportions, one of the most difficult problems in Indo-European […] linguistics."

haps most palpable in the treatment of the Slavic material. Following Stang,[6] I relegate several developments to a post-Proto-Slavic period, for example quantitative changes like the one seen in the first syllable of PS *ˈ*įāgadā* > ŠTK *jägoda*; see Ch. 3 § 4.1. Kortlandt, on the other hand, incorporates many of these developments firmly in his theory of the development of Slavic accentuation. By giving methodological priority to simplicity and to the overall picture of the systems and developments rather than endeavouring to explain as much of the material as possible, I hope that the views endorsed here, apart from being more transparent, will rest on safer ground. Since the views presented here are less dependent on specific interpretations of various data which do not directly concern the Balto-Slavic accentual mobility, hopefully they will be more compatible with the views of other scholars on contiguous aspects of the development of the Baltic and Slavic languages.

Material

The material applied in this study is excerpted from standard synchronic and historical dictionaries and grammars. No new material has been included. Old Lithuanian is quoted from Kudzinowski's *Indeks-słownik* (1977) to Daukša's *Postilė*. Old Prussian is quoted from the vocabulary of Trautmann (1910). Čakavian is quoted from Belić's description of the Novī dialect (1909). Slovincian is quoted from Lorentz's *Slovinzische Grammatik* (1903) and his *Slovinzisches Wörterbuch* (1908–1912). Evidence from the extinct West Slavic language Polabian, which hardly contributes to our understanding of the Proto-Slavic accentuation system, is left out of consideration. Translations of all example words can be found in the word index in the back of the book.

Because of the general agreement on the reconstruction of the accentuation of most Slavic forms, I offer documentary evidence from the separate languages primarily in controversial cases. The Proto-Slavic reconstructions are based on standard works like Stang (1957 [1965]), Illič-Svityč (1979), Kolesov (1972), Dybo (1981) and Zaliznjak (1985). I presuppose that the reader possesses a basic knowledge of the development of the Common Slavic prosodic system in the individual Slavic languages.[7]

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6. Stang (1957 [1965]: 52–55).
7. See the overviews of Illič-Svityč (1979: 75–78); Dybo, Zamjatina and Nikolaev (1990: 11–16) and almost identically Dybo (2000b: 17–20); cf. Jakobson (1963: 164–173).

Delimitations

The prime concern of this study are the diachronic aspects of the Balto-Slavic accentual mobility. While synchronic analyses of reconstructed language stages are necessary and relevant, they remain a means of clarifying the diachronic developments. Likewise, a number of issues in the prosodic and segmental development of various non-Balto-Slavic languages will be treated here in order to clarify the background of the Balto-Slavic mobility.

The primary focus is on the period between the dissolution of the Indo-European linguistic community and the last stage of Proto-Balto-Slavic, with a secondary focus on the period between Proto-Balto-Slavic and the attested Baltic languages and Proto-Slavic. It is thus outside the scope of the study to establish the pre-Proto-Indo-European rules that determine the accentuation of a given word-form or category in the proto-language, for example why some *o*-stems were assigned initial accent and others desinential accent in the proto-language.[8] What is taken into account here is the actually attested accentuation of a word in the various Indo-European languages. Also, I do not treat accentological problems in specific languages like Čakavian or Russian unless the interpretation of these problems is of direct relevance to the reconstruction of the Proto-Slavic accentuation system.

It is not the prehistory of particular words, but the prehistory of types of words and their position in the system that is at the centre of attention in this study. Lexical correspondences are therefore considered to be of minor importance. To a certain degree this is making a virtue of necessity. If due attention is paid to all characteristics of a word, not only phonological but also derivational and semantic, the number of exact word correspondences between Baltic and Slavic and their sister branches is very limited. Combined with the fact that the actually attested exact correspondences do not always point in the same direction from the accentual point of view, we are faced with the risk of drawing conclusions on a statistically insufficient basis. This obviously does not mean that it is superfluous to compare particular words in order to establish the correspondences, quite the contrary, but the value of comparisons of particular words should not be overestimated.[9]

As for the categories involved in this study, I do not refer to the vocative form of nouns, which in various linguistic systems often takes a special position with regard to prosody.[10] The same applies to pronouns, which are only

8. For this and related problems see Rasmussen (1989a: 197–216).
9. Cf. Kim (2002: 103); Darden (1989: 77–78).
10. Cf. Meillet (1914c: 79); Nieminen (1922: 145).

referred to in special cases. Compounds and prefixed formations, which are synchronically transparent and thus easily subject to systemic reanalysis and secondary reformation, are also left out of consideration. Generally, in the present study we are primarily concerned with words consisting of a root and a desinence (in the sense of "desinence" given in the following section).

The non-Balto-Slavic evidence for the Proto-Indo-European prosodic system is limited to Indo-Iranian, Greek and Germanic, which have all indisputably preserved the Proto-Indo-European accent or traces of it. With the possible exception of Germanic, these language branches have, in addition, preserved the distinction between two types of long final syllables. Since the Proto-Indo-European accent and the structure of final syllables are the crucial factors in the development of Balto-Slavic mobility, language branches like Italic, Celtic, Armenian and Albanian, where these factors have left no or very few traces, are not taken into consideration here.[11] The Proto-Indo-European accent is probably preserved in Anatolian languages,[12] but I consider the evidence too insecure to be included here. While the Proto-Indo-European accent may also have survived in Proto-Tocharian, the evidence is too ambiguous to contribute to the reconstructions.[13]

3. Terminology and definitions

Since a number of terms relating to periodisation, prosody and other issues are used differently by different authors – and confusion very often arises already at the terminological level – the following definitions of some potentially difficult and sometimes differently applied terms may come in useful. It applies to all definitions given here that they primarily have a practical purpose.

The term VOWEL STEM refers to the Proto-Indo-European nominal *o*-, *ā*-, *i*-, *u*-, *ī*-, *īs*- and *ūs*-stems and their reflexes in the Indo-European languag-

11. The Proto-Indo-European accent is referred to as a conditioning factor in the development of some of these languages, but at best the evidence confirms what we know from Vedic, Greek and Germanic; for Italo-Celtic (and Germanic) see Lubotsky (1988: 17) with discussion and references; for Armenian see Olsen (1999: 809).
12. Melchert (1994: 47); cf. Lubotsky (1988: 17); Collinge (1995: 35–36) with references; Hittite evidence is applied in reconstructions of the Proto-Indo-European accent by Kim (2002: 15 and passim).
13. Ringe (1987); cf. Kim (2002: 17).

es.[14] Non-vocalic nominal stems are referred to as CONSONANT STEMS.[15] Proto-Indo-European verbal stems formed with the thematic vowel **e*/*o* are referred to as THEMATIC STEMS, while verbal stems formed without the thematic vowel are referred to as ATHEMATIC STEMS. Note that in this study a PARADIGM, when applied to a noun, comprises all inflected forms of the noun. When applied to a verb, however, it does not comprise all forms, but only the forms of one tense, mood and voice at a time; for instance, the forms of the present indicative active of a verb constitute one paradigm, those of the aorist indicative active constitute another.

DESINENCE refers to the complex of stem-forming suffix and case-marker, e.g. PIE *o*-stem acc. sg. *(*u̯ḱ*$^{\text{w}}$)-*om*, while ENDING refers to the case-marker only, e.g. *(*u̯ḱ*$^{\text{w}}$*o*)-*m*. In the case of formations not containing a stem-forming suffix, the term "desinence" is used. For practical reasons, the term PROTO-INDO-EUROPEAN FINAL SYLLABLES is used in a broadened sense, referring not only to final structures containing one syllabic peak, but also to final structures containing two contiguous vowels, possibly separated by a laryngeal.

Periodisation

A linguistic system can be more or less stable, the divergences between the extreme points of the system can be more or less pronounced, but the system will always be in transition. Nevertheless, when the system is observed retrospectively from a certain distance in time, where specific details and systemic inconsistencies tend to disappear, we may establish certain fixed points of reference to various language stages. These fixed points necessarily represent abstractions from the linguistic reality, but with the right precautions they provide us with a useful tool to describe the system and its development. For our purposes, the prehistoric stages of Baltic and Slavic may be referred to as follows:

1 Proto-Indo-European (Ch. 2 § 4) is the language spoken at the end of the period that precedes the oldest innovation not shared by all (known)

14. For practical reasons I speak of *ā*-, *ī*-, *īs*- and *ūs*-stems instead of the more appropriate designations *ah*$_2$-, *ih*$_2$-, *ih*$_2$*s*- and *uhs*-stems; by *ī*-, *īs*- and *ūs*-stems I refer to the Proto-Indo-European *devi̯*-, *vṛkī̯ḥ*- and *tanū̯ḥ*-declensions respectively.
15. Cf. Bammesberger's comments (1990: 18 fn. 27) on the terms "thematic" and "athematic" stems in Indo-European.

Indo-European languages; this language is also referred to as "the proto-language".

2 The pre-Proto-Balto-Slavic period is the period following Proto-Indo-European until the oldest innovation not shared by all (known) Balto-Slavic languages; Proto-Balto-Slavic (see below and Ch. 3 § 5) is the language spoken at the end of this period.

3 The pre-Proto-Baltic period is the period following Proto-Balto-Slavic until the oldest innovation not shared by all (known) Baltic languages; Proto-Baltic (not treated separately in this study) is the language spoken at the end of this period.

4 The pre-Proto-Slavic period is the period following Proto-Balto-Slavic until the monophthongisation of oral diphthongs; Proto-Slavic (Ch. 3 § 4) is the language spoken at the end of this period;[16] reconstructions referred to as "Common Slavic" in this study only serve to present the Proto-Slavic reconstructions in a more easily recognisable manner (see the introduction to Ch. 3 § 4).

The relationship between the Baltic and Slavic language branches is one of the most debated issues in the discussion of the dissolution of the Indo-European proto-language.[17] The "Balto-Slavic problem" is obviously of great relevance to the problem of the development of accentual mobility in Baltic and Slavic. It seems that a pragmatic approach to the problem is recommendable. While certain differences on various linguistic levels between the Baltic and Slavic languages may go back to a very remote period in the prehistory of these branches, for our purposes it is of minor importance whether the Baltic and Slavic languages are viewed in a strictly Stammbaum manner as descendants of a unified Balto-Slavic proto-language,[18] or they are regarded as survivors of a differentiated dialect continuum.[19] In my opinion, the crucial point is that the ancestral dialects of the attested Baltic and Slavic languages

16. For the periodisation of Slavic see Andersen (1985).
17. See the surveys of Szemerényi (1948a; 1948b); Stang (1966a: 1–21); Dini (2002: 152–163); Hock (2006).
18. Cf. Vaillant (1950: 13): "[L]es langues slaves sont surtout proches des langues baltiques, si proches qu'il faut admettre que ces langues représentent deux groupes issus d'une même langue commune et placer, entre la période reculée de l'unité indo-européenne et la période, qui touche aux temps historiques, de l'unité slave, une période d'unité balto-slave."
19. Andersen (1996: 63–64, 188; 1998a: 420); Holzer (1998: 33) with references; (2001: 33); in (1996: 37), Holzer characterises the Balto-Slavic problem as "in der Praxis unlösbar".

apparently were close enough to one another to carry through identical innovations shared by all dialects. Furthermore, it is important to note that among the various segmental, prosodic and morphological problems treated in this study we do not encounter cases that are irreconcilable with the conception of a Balto-Slavic "proto-language" in the sense of a group of dialects that were able to carry through common innovations with identical results, at least seen from our distant perspective. What is essential for us is the fact that the accentuation systems of Baltic and Slavic, especially in the nominal morphology, show striking similarities:

> Der Akzentwechsel in der Nominalflexion weist so grosse Übereinstimmungen zwischen Baltisch und Slavisch auf, dass es möglich ist, innerhalb jedes Deklinationstypus ein balt.-slav. Akzentparadigma zu rekonstruieren.[20]

As long as we keep in mind that the relations between the ancestral dialects of the attested Baltic and Slavic languages may have been considerably more complicated than was once thought, I believe it is methodologically justified to refer to a reconstructed "Proto-Balto-Slavic" language as a simple model of describing the common share of these dialects.

Prosodic terminology

PROSODY refers to suprasegmental characteristics of individual words or syllables: accent, ictus, tone and quantity.[21] The analysis of the prosodic system of a language may often take place on more than one level.[22] A system like that of Štokavian, for instance, in a superficial analysis has contrasting tones, e.g. gen. sg. *sèla* with rising tone vs. nom.-acc. pl. *sëla* with falling tone. In a somewhat deeper analysis, however, where rising tone is interpreted as accent on a following syllable, i.e. *se*ˈ*la* vs. ˈ*sela*, Štokavian may be viewed as a non-tonal language.[23] The analysis becomes even more complicated in the case of languages attested only in written form such as Vedic or Greek,

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20. Stang (1966a: 287–288); cf. Garde (1976, 1: 1): "Dans le domaine de la prosodie (quantité et tons) et de l'accent, les ressemblances entre les diverses langues baltes et slaves sont si frappantes qu'on ne peut les expliquer qu'en supposant l'existence, à une certaine époque de la préhistoire de ces langues, d'un système 'balto-slave' dont les unes et les autres dérivent."
21. For the definitions given in this section I have consulted above all Hyman (1975: 203–233; 2001); Clark and Yallop (1990 [1995]: 347–348); Bruce (1998: 27–28, 42–44).
22. Cf. Hyman (1977: 69 n. 3); Hyman and Wilson (1991: 361).
23. Garde (1968: 150–154); cf. Browne and McCawley (1973).

let alone reconstructed languages like Proto-Indo-European or Proto-Balto-Slavic. In a diachronic study like the present one, we may allow ourselves to focus on the prosodic characteristics of a linguistic system that are relevant to the development of that system. That is to say, if subsequent linguistic changes in the prosodic system affect its more superficial representation, we may regard that representation as relevant to our purposes, and vice versa. Likewise, while the exact phonetics of the reconstructed prosodic systems treated here are beyond our reach, in most cases it is possible to determine the phonologically relevant characteristics of the various reconstructed language stages by looking at their subsequent development.

A PHONOLOGICAL WORD is constituted by a morphological word-form plus proclitics and enclitics.

The term ACCENTED refers to the prominent syllable of a word in prosodic systems where no more than one syllable of a word is prominent relative to its neighbouring syllables. In the prosodic systems of some languages, e.g. Russian, Bulgarian and English, the prominence includes changes in pitch, intensity, duration and/or quality, whereas in other languages, e.g. Vedic, Greek and Japanese,[24] the prominence primarily involves pitch. For the purposes of this study it is of minor importance which parameters are involved in the prominence. I do therefore not consider it necessary to distinguish between those types of prosodic systems, which are often referred to as "stress languages" and "pitch-accent languages";[25] I refer to both systems as ACCENT LANGUAGES, unless it is necessary to make a specific distinction. In some accent languages certain word-forms may, at some linguistically relevant level of interpretation, be unaccented. Unaccented word-forms are found in languages like Vedic and Japanese and, as we shall see, Proto-Indo-European, Proto-Balto-Slavic and Proto-Slavic. Automatic, i.e. non-distinctive, prominence of a certain syllable in a phonological word is referred to as ICTUS. In the linguistic systems treated in this study, ictus coincides with the accent or, in the case of unaccented words, falls on the initial syllable.

In accent languages the accent may or may not be subject to phonologically determined restrictions. At one end of the spectrum we find languages with FREE ACCENT, where the accent cannot be predicted on the basis of the phonological shape of a word-form; Russian and Vedic are of this type. At the other end of the spectrum there are languages with FIXED ACCENT, where

24. For the Japanese accent see Martin (1975: 18–25); McCawley (1978a; 1978b); Vance (1987: 77–107); Hyman (2001: 1376). I am indebted to Mikkel Lotz Felter for his help with references on Japanese accent.
25. See the informative discussion in Hyman (2001: 1376–1377).

the accent is predictable on phonological grounds; this group includes Czech (accent on the first syllable of the word), Polish (accent on the penultimate) and Turkish (accent on the final syllable). In between we find languages whose accent is subject to some restrictions, e.g. Štokavian (in a surface analysis, the accent cannot be placed on the final syllable of polysyllabic words) and Greek (the accent cannot be placed further towards the beginning of the word than the antepenultimate, and if the final syllable contains a long vowel the accent is usually on one of the last two syllables). This type of languages have a RESTRICTED ACCENT.

When pitch, apart from contributing to marking the prominent syllable of a word, has a distinctive function, we may speak of TONE. Examples of languages with accent and distinctive tone are Štokavian, Čakavian, Lithuanian and Greek. In most languages with distinctive tone, the distribution of tones is subject to some restrictions. Note that languages like Vedic and Japanese may also be said to have distinctive tone. For instance, Japanese /hašiwa/ and /hašíwa/, consisting of /haši/ 'edge' and /haší/ 'bridge' followed by the topic marker /wa/, are realised tonally as LHH and LHL and are thus only distinguished by the tone of the final syllable.[26] As can be seen from the phonological representations of the words, however, we may account economically for prosodic systems of this type also in terms of accent. It is of theoretical relevance to observe that there are languages that display distinctive tone independently of the accent.[27] In Chinese there are numerous pairs of the type ˡ*kètǐ* 'object' vs. ˡ*kètí* 'task', which are only distinguished by the tone of the unaccented syllable. Note that accent is distinctive in Chinese, as shown by pairs like ˡ*bàochóu* 'reward' (noun and verb) vs. *bào*ˡ*chóu* 'revenge' (noun and verb). Such examples are counterevidence to the claim that tonal oppositions cannot exist in unaccented syllables.[28]

The prosody of some languages may conveniently be described with reference to MORAS, or "something of which a long syllable consists of two and

26. Vance (1987: 81).
27. Cf. Allen (1973: 94) with references. I am grateful to Christoph Harbsmeier for discussing the Chinese prosodic system with me and providing the examples.
28. Kuryłowicz (1939 [1973]: 234–235; 1952 [1958]: 210); Ternes (2001: 173): "In den Tonsprachen im strengen Sinn ist jede einzelne Silbe durch eine tonale Eigenschaft markiert, d.h. jede einzelne Silbe trägt einen phonologisch distinktiven Ton. Das bedeutet umgekehrt, daß in solchen Sprachen kein Wortakzent möglich ist, der eine dieser Silben gegenüber den anderen hervorheben würde. In bezug auf die Intensität sind alle Silben gleichwertig. […] Die bekannteste Sprache ist zweifellos Chinesisch."

a short syllable consists of one" in McCawley's definition.[29] In Čakavian, for instance, the distinction between the rising tone of gen. pl. *brád* and the falling tone of gen. pl. *krâv* may be represented as a distinction between *bra*ˈ*ad* and *kr*ˈ*aav* with accent on the second and first mora respectively. Tones that are best accounted for in terms of moras are referred to as SYLLABIC TONES.

In the descriptions of the accentuation systems that will be treated here, the phonological terms INITIAL, MEDIAL and FINAL ACCENTUATION are self-explanatory and generally applied, as are also the morphological terms ROOT-, SUFFIXAL and DESINENTIAL ACCENTUATION. From the paradigmatic point of view we speak of COLUMNAR or IMMOBILE ACCENTUATION when in all forms of a word the accent falls on the same syllable counting from the beginning of the word, and of MOBILE ACCENTUATION when desinentially and non-desinentially accented forms alternate in a paradigm. For the morphological terms "acrostatic", "proterokinetic", "amphikinetic" and "hysterokinetic" applied to Proto-Indo-European, see Ch. 2 § 4.3.

Reference to LONG and SHORT SYLLABLES is language-specific:

1 In languages like Proto-Balto-Slavic and Proto-Slavic, a long syllable contains a long vowel, while a short syllable contains a short vowel, regardless of what follows the vowel.
2 In Greek, syllables are referred to as long if they contain a long vowel, or a short or long vowel followed by a semivowel, and as short if they contain a short vowel not followed by a semivowel.
3 In Lithuanian and Latvian, long syllables contain a long vowel, or a short vowel followed by a resonant, while short syllables consist of a short vowel not followed by a resonant.

In languages of type (1) there is no need to make a distinction between monophthongs and diphthongs. In languages of types (2) and (3), diphthongs have *V̯U* and *VR* structure respectively. In languages of the two latter types, diphthongs are functionally equivalent to long vowels. For the use of short, long, hiatal and disyllabic with reference to Proto-Indo-European final syllables, see Ch. 2 § 4.2.

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29. McCawley (1977: 262 = 1978a: 288); see also (1978b: 129–131). Note that what counts as a long syllable in different languages may be only *V̄* or it may include *VR*, or it may include both *VR* and *VT*. Various criteria for regarding languages as "mora-counting" are given by Jakobson (1937b [1971]: 259–261); cf. Fischer-Jørgensen (1975: 35–37).

In Proto-Balto-Slavic, a syllable is ACUTE if glottalised (or similarly marked) and CIRCUMFLEX if not; the same distinction applies to pre-Lithuanian and pre-Latvian syllables in all positions, and to the reflexes of these syllables in Lithuanian and Latvian. In Proto-Slavic, syllables are acute if they contain a long vowel, and circumflex if they contain a short vowel. In Greek, acute refers to short vowels with high tone and long syllables with rising tone, while circumflex refers to long syllables with rising-falling tone.

4. History of research

This section contains an overview, in chronological order, of the most important hypotheses about the origin of the Balto-Slavic accentual mobility.[30] It goes without saying that this survey of the views on "one of the most controversial issues of comparative IE grammar"[31] cannot be complete.[32] Scholars who have exclusively treated either the Baltic or the Slavic mobility are included only if their contribution has had significant influence on the evolution of the field of research, as is the case with Ferdinand de Saussure. Accordingly, scholars like Aleksandar Belić, whose main concern was the Common Slavic prosodic system,[33] are not included. Ronald I. Kim's interesting dissertation (2002) would deserve a place in the survey, but too many points were unclear for me to be able to offer an adequate presentation of his theory.

The question of the rise of accentual mobility in Balto-Slavic obviously cannot be treated in isolation. Different interpretations of the mobility result from different views on various related problems such as the suprasegmen-

30. See also the useful historical overviews of Illič-Svityč (1979: 7–15, 79–81); Birnbaum (1975 [1979]: 116–124, 245–249), cf. Dybo (1987); Birnbaum and Merrill (1985: 12–21); Hinrichs (1985: 5–13); Lehfeldt (1993 [2001]: 7–29); Hock (2004: 13–21, 2005: 1–11); cf. van Wijk (1923 [1958]: 14–16, 48–94).
31. Kiparsky (1973: 826), on the Indo-European prehistory of the Lithuanian accent paradigms; cf. Illič-Svityč (1979: xiii): "It would be difficult to find an area of Baltic and Slavic linguistics in which differences of opinion between individual investigators are more significant than in the area of accentology."
32. Cf. Sukač (2002: 5), on Slavic accentology: "Kritické zhodnocení všech přístupů by znamenalo vytvořit minimálně životní dílo." ["A critical evaluation of all approaches would require at least the work of a lifetime."].
33. See his *Акценатске студије* [Accentological studies] (1914); Belić's point of departure, the definite adjective, was rightly regarded as inappropriate by Stang (1957 [1965]: 100).

tal characteristics of Proto-Indo-European final syllables, the origin of the tones found in Baltic and Slavic languages, the correspondences between the various Proto-Indo-European, Baltic and Slavic accent paradigms, the nature of Saussure's Law, etc. I shall therefore briefly mention these issues in the following, focusing on the different opinions about the origin of the Balto-Slavic paradigmatic mobility.

In the overview I have generally retained the various scholars' individual notations of reconstructed forms. In the cases where, for the sake of clarity, I have modified the notations, I have added a note.

Bopp, Kayssler

Already Franz Bopp noted in his *Vergleichendes Accentuationssystem* (1854) the remarkable similarities, especially in the *ā*-stems, between the mobile paradigms of Lithuanian and Russian, tracing the principles of accentuation back to "die Zeit der Identität der lettischen und slawischen Sprachen".[34] As in Leopold Kayssler's *Die Lehre vom russischen Accent* (1866), however, we do not find any systematic comparison of the Baltic and Slavic accentuation systems with those of other Indo-European languages.

Brandt

A comprehensive attempt at a diachronic explanation of the Baltic and Slavic accentuation systems was endeavoured by Roman Brandt, who in his *Начертаніе славянской акцентологіи* [An outline of Slavic accentology] (1880) made a number of important observations on the reconstruction of the Common Slavic accentuation system on the basis of the modern Slavic languages. Brandt was aware of the close relationship between the Lithuanian and Slavic accentuation systems, which he compared with those of Vedic and Greek. Like his predecessors, Brandt did not systematically analyse the origin and development of the Baltic and Slavic mobile accent paradigms. His comparisons of the Lithuanian and Slavic accentuation systems with those of Vedic and Greek are to a large degree limited to comments on particular forms.

Maretić

Though the regularities hiding behind the effects of Saussure's Law in Lithuanian were still to be discovered, Tomislav Maretić in his paper "Slovenski

34. Bopp (1854: 90–91).

nominalni akcenat s obzirom na litavski, grčki i staroindijski" ["The Slavic nominal accent compared with the accent in Lithuanian, Greek and Old Indian"] (1890) provided a systematic analysis of the relationship between the Balto-Slavic and Greek-Vedic nominal accentuation systems. In the beginning of his paper, Maretić formulated a question which remains central in Indo-European accentology: "što je prvobitno u *o*- i *ā*-deklinaciji, da li grčko-indijska nepromjenitost ili litavsko-slavenska promjenļivost?" ["what is original in the *o*- and *ā*-declension, the Greek-Indian immobility or the Lithuanian-Slavic mobility?"][35] Maretić was inclined to prefer the former option, ascribing the accentual mobility of Balto-Slavic vowel stems to the influence of the mobility of monosyllabic consonant stems like GK nom. sg. *ϑήρ*, acc. *ϑῆρα*, gen. *ϑηρός* etc. and VED nom. sg. *pā́t*, acc. *pā́dam*, gen.-abl. *padáḥ* etc.

Finck

The contrast between the Balto-Slavic accentual mobility and the Vedic-Greek immobility was examined in another work written without reference to Saussure's Law, Franz Nikolaus Finck's dissertation *Über das verhältnis des baltisch-slavischen nominalaccents zum urindogermanischen* (1895). Rejecting Maretić's proposal that the mobility of Balto-Slavic vowel stems is analogical to that of monosyllabic consonant stems,[36] Finck concluded that the Balto-Slavic mobility, apart from secondary developments, directly continues the Proto-Indo-European state of affairs. The word for 'hand', for instance, had a Proto-Indo-European desinentially accented nom. sg. **ronkā́*, a root-accented acc. sg. **rónkām*, a desinentially accented gen. sg. **ronkā́s* etc.;[37] cf. RU nom. sg. *ruká*, acc. *rúku*, gen. *rukí* etc.

Thus, already at the end of the nineteenth century, the two main hypotheses in the discussion of the prehistory of the Balto-Slavic accentual mobility had their adherents: those who regarded the mobility as an innovation in Balto-Slavic under influence of the consonant stems, and those who regarded the mobility as an archaism directly inherited from the proto-language. These

35. Maretić (1890: 39).
36. "Es giebt aber einfach GAR NICHTS, was den einfluss dieser vorausgesetzten deklinations-klasse auch nur im geringsten Masse wahrscheinlich machen könnte." (Finck 1895: 37–38, emphasis as in original).
37. The tones of the desinences are here, as in Finck's reconstructions, not indicated.

two hypotheses were to be elaborated upon and discussed throughout the following century.

Saussure

In what was to become perhaps the most influential pages ever written on Balto-Slavic accentology, the article "Accentuation lituanienne" (1896), the Swiss linguist Ferdinand de Saussure, the "Koryphäe der balt[ischen] Akzentologie",[38] presented a concise analysis of the Lithuanian accentuation system.[39] By means of internal reconstruction he showed that the Lithuanian accent paradigms are analysable as two succeding systems. The first system was independent of tone and consisted of an immobile and a mobile accent paradigm. The second system arose when a pre-Lithuanian accent advancement from a non-acute syllable to a following acute syllable ("Saussure's Law") caused the two original accent paradigms to split into the four paradigms known from contemporary Lithuanian. In contrast to Meillet, Hirt, Fortunatov and other contemporary scholars, Saussure in his writings on Lithuanian accentuation did not even mention Slavic.

Having examined the alternations caused by the accent advancement in the Lithuanian declension, conjugation and derivation, Saussure proceeded to an analysis of the accent alternations in the mobile accent paradigms, tracing back the accent curves of consonant stems like *duktẽ* to a paradigm with desinential accentuation. To account for the initial accentuation of forms like acc. *dùkterį*, Saussure proposed an accent retraction from medial syllables in the consonant stems:[40]

	pre-LI		LI	
nom.-voc.	**duktẽ*	>	*duktẽ*	
acc.	**duktẽrin*	>	*dùkterį*	
dat.-loc.	**duktẽrĩ*	>	*dùkteri*	
gen.	**dukterès*	>	*dukterès*	
instr.	**dukterimì*	>	*dukterimì*	etc.

38. Nieminen (1922: 158).
39. Cf. van Wijk (1923 [1958]: 68–69); Torbiörnsson (1924b: 9–20); Illič-Svityč (1979: 9–11); Dybo (1977).
40. Saussure (1896 [1922]: 533).

By this accent retraction, which is often, but somewhat inappropriately, referred to as "Pedersen's Law",[41] the paradigm of the pre-Lithuanian desinentially accented polysyllabic consonant stems, originally characterised by an alternation of forms accented on the final and the penultimate syllable, changed to a marginally mobile paradigm characterised by an alternation of forms with final and initial accentuation. To explain the accent curves of the mobile vowel stems, where the retraction would not have operated, Saussure assumed that

> systématiquement le lit[uanien] a, dans ses oxytons voc[aliques] (nominaux), retiré l'accent de la finale dans les formes où le paradigme G (alors spécial aux consonantiques) lui en fournissait l'exemple, par ex. nom. pl. *sū́nūs* au lieu de **sūnũs* d'après *dùkteres* qui était, lui, pour **duktẽres*, et n'avait jamais connu d'accent final.[42]

By this analogical process the desinentially accented vowel stems imitated the marginal mobility of the consonant stems, the original desinential accentuation being preserved in pronouns like *katràs*, *anàs* etc. The reason why *o*-stem nom. pl. *dievaĩ*, in contrast to *u*-stem *sū́nūs*, resisted the analogical influence from the consonant stem nom. pl. *dùkteres* was the fact that the desinences diverged too much from each other to provoke a retraction of the accent. The singular of the Lithuanian *o*-stems in Saussure's words presents "plusieurs irrégularités qu'il serait impossible de discuter en peu de mots".[43]

The hypothesis about the origin of the Lithuanian mobile accent paradigms advanced by Saussure provides the point of departure, with minor or major modifications, for a number of later views on the development of Balto-Slavic accentual mobility, including the theories advanced by Pedersen, Kuryłowicz, Ebeling and Kortlandt, as we shall see below.

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41. E.g. Kortlandt (1975: 8–10); to avoid confusion I shall retain this designation; Jasanoff (2004a: 252 with fn. 12) refers to the retraction as "Saussure–Pedersen's Law"; with minor modifications, the retraction is accepted by Pedersen (1933: 24–26); Torbiörnsson (1924b: 17, 52–53 and passim); Hjelmslev (1932: 1–2); Kuryłowicz (1938: 7; 1952 [1958]: 163–165; 1968: 112); but cf. (1931: 27); Hamp (1959: 44–45); Hinrichs (1985: 10–11); Derksen (1996: 25); Schaffner (2001: 91 with fn. 112); Snoj (2004: 540 with fn. 21); cf. van Wijk (1923 [1958]: 69); Sadnik (1959: 10–11); Illič-Svityč (1979: 10–11); Ebeling (1967: 579 with fn. 17); Garde (1976, 2: 458 n. 454); Collinge (1985 [1996]: 147–148); the law was rejected by Stang (1957 [1965]: 11–13, 176; 1966a: 132–135).
42. Saussure (1896 [1922]: 534); "G" = Lithuanian mobile accent paradigm.
43. Saussure (1896 [1922]: 536).

Meillet

The French linguist Antoine Meillet, who proceeded from Saussure's analysis of the Lithuanian accentuation system as originally consisting of an immobile and a mobile accent paradigm, also took Slavic into account.[44] Already when Saussure first proposed a pre-Lithuanian accent advancement from a circumflex to a following acute syllable at the Congress of Orientalists in 1894,[45] Meillet proposed to extend the domain of the law to Slavic. At this first instance, Meillet considered the law to be "slavo-lette par sa date".[46] Later, however, Meillet explicitly ascribed the accent advancement to a very late period in Slavic: "La loi semble donc être PAN-SLAVE; mais le fait qu'elle exprime, loin d'être de date letto-slave, ne remonte même pas jusqu'au slave commun."[47]

In contrast to Saussure, who explained the Lithuanian mobile vowel stems as analogical to consonant stems of the *duktẽ* type, Meillet, like Finck, regarded the Lithuanian and Slavic accentual mobility in vowel stems as an archaism vis-à-vis the immobility of these stems in Vedic and Greek. Restricting himself to rather cautious statements about details of the original Proto-Indo-European accentuation system,[48] Meillet maintained that it would be more appropriate to derive the Vedic and Greek accentuation systems from a system similar to those of Lithuanian and Slavic than the other way round. In the Proto-Indo-European *ā*-, *i*-, *u*- and *C*-stems, Meillet established three accentuation types similar to those found in Slavic, viz. one mobile type and two immobile types, of which one had root-accentuation and the other had desinential accentuation. The mobility of the Proto-Indo-European *ā*-, *i*-, *u*- and *C*-stems was, according to Meillet, of the amphikinetic type,[49] similar to that of VED nom. sg. *púmān*, acc. *púmāṁsam*, gen.-abl. *puṁsáḥ*; or nom. sg. *pánthāḥ*, acc. *pánthām*, gen.-abl. *patháḥ*, instr. pl. *pathíbhiḥ*. As a consequence of the operation of Saussure's Law in root-accented words with a circumflex root-syllable, in Slavic these words were transferred to the mobile

44. See above all Meillet (1914c); for Meillet's accentology see van Wijk (1923 [1958]: 69–73); Illič-Svityč (1979: 79–80).
45. Saussure (1897: 89).
46. Meillet (1897: 89); cf. Boyer and Meillet (1894: 176–177).
47. Meillet (1900a: 351, emphasis as in original); cf. (1903b: 426).
48. "On ne peut rapprocher que les procédés généraux du védique, du grec, du baltique et du slave. Ces procédés concordent en gros; mais les divergences sont telles qu'il est impossible de reconstituer avec quelque détail l'état indo-européen." (Meillet 1914c: 79).
49. For the term "amphikinetic" see Ch. 2 § 4.3.

accent paradigm, as in the case of RU nom. sg. *ruká*, acc. *rúku*, (analogically) gen. *rukí*; cf. LI *rankà*, *rañką*, *rañkos* AP 2. In the neuter *o*-stems, there was an accent alternation between the singular and plural, which originally constituted a suppletive paradigm.

The accentual mobility of Lithuanian and Slavic is, according to Meillet, an innovation only in the masculine *o*-stems, which were immobile in the proto-language.[50] In Lithuanian the rise of mobility in *o*-stems was possibly connected with the inclusion of original neuter nouns in this category, while in Slavic it was a result of the introduction of certain desinences from the *u*-stems. Note here the difference from Stang's conception, according to which mobile paradigms were found in ALL stems in the proto-language.

Meillet's polemics against Hirt's Law, which he found unacceptable, are of minor significance for the question of paradigmatic mobility. One of Meillet's important contributions to Slavic accentology was his observation that Lithuanian mobile words with an acute root-syllable correspond to mobile words with a circumflex root-syllable in Slavic, cf. e.g. RU nom. sg. *golová*, (analogically) acc. *gólovu* vs. LI *galvà*, *gálvą*. This correspondence is referred to as "Meillet's Law".

The assumption advanced by Meillet – and, independently, by Fortunatov[51] – that Saussure's Law had taken place both in Lithuanian and in Slavic was met with general acceptance. For many years to come, the question which divided the scholars was whether the law should be ascribed to later separate stages of Lithuanian and Slavic or, at least in part, to a Balto-Slavic proto-language.[52] Meillet's view that the Balto-Slavic accentual mobility in vowel stems represents an archaism compared to their immobile correspondences in Vedic and Greek was supported and further elaborated by such a prominent accentologist as Stang. This view is criticised in § 5 below.

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50. Thus Meillet (1914c: 79–80); earlier, Meillet had argued for original mobility in masculine *o*-stems (Boyer and Meillet 1894: 174–175); cf. the rhetorical question of Bally (1908: 12 fn. 2): "Enfin est-on certain que l'indo-européen n'a pas connu de saut d'accent dans la flexion des thèmes en *-o-*?"
51. Fortunatov (1897b: 62).
52. In Lehr-Spławiński (1917: 1–2) a survey of various points of view is presented; see also Hujer (1910: 2 fn. 1); Matveeva-Isaeva (1930: 137–142); Collinge (1985 [1996]: 149–152; 232–233).

Hirt

Hermann Hirt, who was not impressed by Saussure's explanation of the origin of the Lithuanian accentual mobility,[53] proposed an alternative account of the development of the Balto-Slavic accentuation system.[54] In contrast to many of his predecessors and successors, Hirt did not assume any systematic accentual influence of the consonant stems on the vowel stems. Instead, he regarded the Baltic and Slavic accentual mobility as the result of various accent laws.

The basic laws that determined the curves of the Baltic and Slavic accent paradigms and the distribution of the words among these paradigms are the following, of which (1), (2) and (3) affected both Lithuanian and Slavic, whereas (4) was limited to Lithuanian:

1 The accent was retracted from the final syllable to an acute penultimate.
2 The accent was advanced from a circumflex penultimate to an acute final syllable.
3 The accent was retracted from an acute syllable to a preceding acute syllable.
4 The accent was retracted from a short penultimate to the preceding mora.

Law (1) ("Hirt's Law") explains the root-accentuation of words like LI *dū́mai*, ŠTK *dȉm* vs. VED *dhūmá-*, GK *θῡμός*. Since this law only affected the distribution of particular words among the accent paradigms, it is of limited relevance to the development of the accent curves in Baltic and Slavic.

Although Hirt emphatically insisted on the opposite,[55] Law (2) is practically identical to Saussure's Law with the exception that in Hirt's formulation medial acute syllables did not attract the accent. The second law is responsible for the final accentuation of e.g. LI nom. sg. *rankà*, RU *borodá* with an acute desinence, as opposed to LI acc. sg. *rañką*, RU *bórodu* with a circumflex desinence.

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53. "[Ich] muß de Saussures Theorie für einen Blender erklären." (Hirt 1929: 163).
54. In the following I stick to the relevant pages of Hirt's *Der Akzent* (1929); his earlier views are presented e.g. in (1895: 91–98).
55. "Dieses Gesetz ist ein wesentlich anderes als das von DE SAUSSURE aufgestellte" (Hirt 1929: 145 fn. 1, emphasis as in original); cf. Saussure (1896 [1922]: 537–538); Hirt (1899: 41).

Hirt was aware of the fact that Law (3), originally proposed[56] but later rejected[57] by Pedersen, was theoretically rendered superfluous in disyllabic word-forms by Law (1). Assuming, however, that some immobile words with acute root-accentuation had secondarily joined the mobile paradigm, Hirt explained the existence of root-accented forms like instr. sg. *lángu* < **lán*ˈ*gṓ* in the Lithuanian AP 3 as due to the effects of Law (3); AP 3 is thus a deformation of AP 4.

By Law (4) ("Pedersen's Law"), the Lithuanian consonant stems acquired initial accentuation in forms like acc. sg. *dùkterį* vs. VED *duhitáram*, GK *θυγατέρα*.[58] Moreover, verbal forms like 1 pl. *sùkame*, 2 pl. *sùkate* are derived from **su*ˈ*kame*, **su*ˈ*kate*, while forms like 1 sg. *sukù*, 2 sg. *sukì* have preserved the original position of the accent.

Like other representatives of traditional Balto-Slavic accentology, Hirt reckoned that the root-accented *o*-stems remained root-accented in Slavic, explaining the desinential accentuation found in a few forms like RU gen. pl. *volkóv* as a consequence of the fact that the desinences of these forms were imported from the *u*-stems; in Lithuanian the root-accented *o*-stems yielded AP 1 and 2 in accordance with Law (2). After the redistribution caused by Law (1), which increased the number of words with acute root-accentuation, desinentially accented *o*-stems retained this accentuation in Slavic; in Lithuanian, AP 3 and 4 originally had root-accentuation in the singular and desinential accentuation in the plural, reflecting the accentuation of neuter nouns. The mobility of Baltic and Slavic *ā*-stems may to some extent, according to Hirt, reflect the original mobility found in *ī*-stems like GK nom. sg. *ὄργυια*, gen. *ὀργυιᾶς*. In the *i*- and *u*-stems there was paradigmatic mobility in the proto-language, perhaps reflected in the Lithuanian AP 4 – and, via Law (3), AP 3 – and in the Slavic mobile paradigms.

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56. Pedersen (1905: 333).
57. Pedersen (1907: 213); cf. (1933: 36–37); the assumption of an accent retraction from an acute to a preceding acute syllable appears in the works of various authors, including those of Stankiewicz.
58. Hirt, interestingly, did not mention the Swiss scholar's role in connection with this retraction, attributing the discovery of it solely to Torbiörnsson (Hirt 1929: 173–175).

Pedersen

Holger Pedersen maintained that in late Proto-Indo-European, accentual mobility existed only in consonant stems.[59] Vowel stems at this point had columnar accentuation, although traces of earlier paradigmatic mobility are occasionally found in the *i*-, *u*-, *ā*- and *ē*-stems. Accepting Saussure's hypothesis of an accent retraction from medial syllables in hysterokinetic[60] consonant stems of the type pre-LI acc. sg. **duk*ˈ*terin* > LI *dùkterį* ("Pedersen's Law"), Pedersen agreed with Saussure that the desinentially accented vowel stems had imitated the new mobile accentuation of the polysyllabic consonant stems. The dative singular of all stem-classes received root-accentuation under the influence of the locative singular of the consonant stems (pre-LI loc. sg. **duk*ˈ*teri* > LI *dùkteri*); the *o*- and *ā*-stem instrumental singular received root-accentuation by analogy with the dative singular. Saussure's Law subsequently changed the accent curves of words with a non-acute root.

The development sketched above, including Saussure's Law, was, according to Pedersen, common to Lithuanian and Slavic. The scope of Saussure's Law may have been extended in Slavic compared to Lithuanian, as indicated by cases where the accent is moved two syllables forward, e.g. RU *lepetát'* from **lépetati*.[61] Slavic root-accented *ā*-stems with a non-acute root (corresponding to Lithuanian AP 2) have joined the mobile paradigm. In the genitive singular of the *i*- and *u*-stems, root-accentuation ousted the desinential accentuation due to the influence of the dative singular; only a few traces are preserved in Slavic of the original accentuation of these forms, e.g. RU adv. *iskoní*. The nominative singular of the Slavic *i*- and *u*-stems has acquired root-accentuation by analogy with the accusative.

Sedláček

Considering Meillet's treatment of Saussure's Law in Slavic and the difficulties in tracing the law back to a common ancestor of Baltic and Slavic, František Sedláček advanced an original hypothesis on the origin of paradigmatic mobility in Balto-Slavic.[62] Instead of Saussure's pre-Lithuanian

59. In this account I follow the exposition of Pedersen (1933: 21–44), which is primarily concerned with Lithuanian; also relevant is (1907: 213–215).
60. For the term "hysterokinetic" see Ch. 2 § 4.3.
61. Pedersen (1905: 307).
62. Sedláček (1914: 168–183); Sedláček's accentology and the reception of it are the subject of Sukač and Šaur (2004); see also Sukač (2004).

accent advancement from a short or circumflex syllable to a following acute syllable, the Czech scholar assumed that the mobility was initiated by a pre-Proto-Balto-Slavic accent retraction, a kind of "reversed" Saussure's Law: "měla-li koncovka přízvuk tažený, přešel v baltoslovanštině na počáteční slabiku slova, kteráž tím nabyla rovněž tažené intonace" ["if an ending had circumflex intonation, the accent was retracted to the first syllable of the word in Balto-Slavic, which thereby also received circumflex intonation"].[63] Thus, according to Sedláček forms like LI gen. sg. *viĩko*, ŠTK *vûka* have developed regularly from PIE **u̯ḷkʷṓd*;[64] similarly LI dat. sg. *viĩkui*, ŠTK *vûku* < PIE **u̯ḷkʷṓi̯*; LI dat. sg. *rañkai*, ŠTK *rûci* < PIE **ronkắi̯*. The circumflex tone of the root-syllable of this type of words in Proto-Balto-Slavic is shown by combinations with a preposition, e.g. ŠTK *ȍd boga*, to *bȍga* from PIE **bʰogṓd*.

Proto-Indo-European root-accented words retained this accentuation in Proto-Balto-Slavic; in these cases the root received an acute tone. If the root-vowel was long, the acute tone was preserved in both Baltic and Slavic, e.g. LI *vìlna*, ŠTK *vȕna* from PIE **u̯ḷ́nā*. In words with a short root-vowel only Slavic preserved the distinction between root-accented and desinentially accented words. An example of the latter type is ŠTK *bȍga*, *ȍd boga* (see above); the former type is represented for example by ŠTK *vȍlja*, where the accent is never retracted to a preposition. In Baltic the two types of accentuation of short syllables have probably merged.

The reversed Saussure's Law in Balto-Slavic proposed by Sedláček has certain advantages compared to the traditional formulation of the law. For instance, while most scholars who assume that Saussure's Law operated in Slavic trace words with mobile accentuation back to originally root-accented words, according to Sedláček's hypothesis Balto-Slavic mobile words as a rule reflect words with Proto-Indo-European desinential accentuation. This correspondence, similar to the one assumed for Lithuanian by Saussure, would find support in Illič-Svityč's (1963) examination which appeared half a century after Sedláček's study.

Sedláček's accent retraction also leaves a number of issues unexplained, however. According to Sedláček, acute tone of the root was regular only in originally root-accented words, whereas Baltic and Slavic mobile words have circumflex tone. While this hypothesis offers a straightforward explanation of the circumflex tone of ŠTK acc. sg. *glâvu*, it is contradicted by the existence of mobile words with an acute root-vowel in Lithuanian (e.g.

63. Sedláček (1914: 176, sentence emphasised in original).
64. Sedláček's notation of Proto-Indo-European reconstructions has been somewhat modified.

galvà AP 3). We find no explanation of the existence of two circumflex paradigms in Lithuanian, AP 2 and 4, of which only the former corresponds to Sedláček's expectations. Sedláček was also forced to regard the Slavic AP *b* as secondary. Moreover, it is hardly possible to deny, as Sedláček did, that the Lithuanian Saussure's Law consisted in an accent advancement from a non-acute to a following acute syllable. Because of these shortcomings, Sedláček's hypothesis was received unenthusiastically by his contemporaries and is only rarely referred to.[65] Despite numerous divergences between the two hypotheses, Sedláček's reversed Saussure's Law to a considerable extent resembles the accent retraction proposed in the present study (see Ch. 4).

Lehr-Spławiński

Stressing the importance of treating the Slavic and Lithuanian accentuation systems equally and not forcing the former to conform with the latter, Tadeusz Lehr-Spławiński concentrated on issues in Slavic accentology.[66] Like many of his predecessors he maintained that the most important factor in the development of the paradigmatic accent mobility of both Lithuanian and Slavic was Saussure's Law, which he characterised as "niewątpliwie jedną z najpewniejszych zdobyczy nauki o akcencie słowiańskim" ["undoubtedly one of the safest achievements within the study of Slavic accent"].[67]

The Proto-Indo-European point of departure taken by Lehr-Spławiński is similar to the one attested in Vedic and Greek. The *o*-, *ā*-, *i*- and *u*-stems were originally either root-accented or desinentially accented, but they did not have mobile accentuation. The *ī*-stems, reflected in Greek mobile nouns like nom. sg. *ὄργια*, gen. *ὀργιᾶς*, in the Vedic *devī́*- and *vṛkī́ḥ*-declensions and in Lithuanian *ė*-nouns like *vìlkė*, were accentually mobile in the protolanguage.

The first phonetic accent replacement in the prehistory of Baltic and Slavic was Hirt's Law, which presumably took place in a common ancestor.[68] After

65. See above all the review of Sedláček (1914) by Lehr-Spławiński (1918); van Wijk (1923 [1958]: 49) claimed that "Sedláček durch seine Leugnung des De Saussureschen Gesetzes einfache Sachen unnötigerweise verwickelt und dunkel gemacht hat."
66. The following is based on the overview of the development of Slavic, with occasional reference to Lithuanian, presented in Lehr-Spławiński (1918, esp. pp. 242–250); in (1928) Lehr-Spławiński proposed to combine Hirt's Law and Saussure's Law into one law in Slavic.
67. Lehr-Spławiński (1917: 7).
68. Thus Lehr-Spławiński (1918: 243); but cf. (1928: 100).

the split of Baltic and Slavic, Saussure's Law operated separately in both language branches. In Slavic the law had the effect of introducing mobility in originally root-accented (*į*)*ā*-stems with a non-acute root-syllable. At first this mobility was quite different from the original mobility of the *ī*-stems, but the two types tended to merge. The influence of the mobility of the *ī*-stems is seen in the desinential accentuation of the (*į*)*ā*-stem genitive singular, which could not be achieved through Saussure's Law but is inherited from the proto-language.[69] Assuming that root-accented and desinentially accented masculine *o*-stems remained basically immobile in Slavic, Lehr-Spławiński followed Meillet in regarding the mobility in these stems as a late result of the introduction of desinences from the *u*-stems. In the neuter *o*-stems, on the other hand, the mobility was inherited from Proto-Indo-European. Unlike Meillet, Lehr-Spławiński found no traces of original mobility in the Slavic *i*- and *u*-stems, the Slavic mobile paradigms being derivable from root-accented paradigms through the operation of Saussure's Law in words with a non-acute root-syllable.

Van Wijk

Summing up the results of the accentological research of the preceding five decades, Nicolaas van Wijk in his book *Die baltischen und slavischen Akzent- und Intonationssysteme* (1923), with the subtitle *Ein Beitrag zur Erforschung der baltisch-slavischen Verwandtschaftsverhältnisse*, endeavoured to examine the significance of the Baltic and Slavic accentuation systems for the question of the relationship between these language groups. The most important factor in the development of the Baltic and Slavic accentual mobility was, according to van Wijk, Saussure's Law:

> An der Wirkung dieses Gesetzes sowohl auf slavischem wie auf baltischem Boden ist kein Zweifel möglich. Das ergibt sich aus der Leichtigkeit, mit welcher dieses Gesetz es uns gestattet sonst vollständig dunkle Probleme zu lösen.[70]

In contrast to scholars like Pedersen, van Wijk was sceptical of projecting Saussure's Law back to a Balto-Slavic proto-language. Even in cases where the results of the accent advancement are identical in Lithuanian and Slavic, e.g. LI nom. sg. *rankà*, RU *ruká* from *|*rañkā́*, van Wijk preferred Meillet's hypothesis that Saussure's Law had operated independently in Baltic

69. Thus Lehr-Spławiński (1918: 246); but cf. (1917: 20).
70. Van Wijk (1923 [1958]: 48).

and Slavic. By separating the Lithuanian and Slavic accent advancements, van Wijk was able to explain the numerous divergences between the forms affected by the Lithuanian and Slavic versions of Saussure's Law. While the formulation of the law is approximately the same in both language branches – an acute syllable attracted the accent from a preceding non-acute syllable – the properties of specific syllables diverge. For instance, as shown by GK *ἀμφώ* the desinence of the *o*-stem nominative-accusative dual was originally acute and has regularly attracted the accent in LI *abù*; but in RU *óba*, ŠTK *öba* the desinence did not attract the accent, as the acute had secondarily been replaced by a circumflex.

Rejecting Meillet's idea that the accentual mobility of Lithuanian and Slavic vowel stems was inherited from the proto-language, van Wijk, albeit somewhat unenthusiastically, accepted Saussure's hypothesis that the pre-Lithuanian accent retraction from medial syllables in word-forms like acc. sg. **duk*ˈ*terin* > LI *dùkterį* ("Pedersen's Law") had been imitated by the desinentially accented vowel stems.[71] In Old Prussian, desinentially accented vowel stems were apparently preserved in cases like *deiws*, *deinan* etc. as indicated by the consistent absence of a macron on the root-syllable.[72] The desinentially accented paradigms were preserved also in Slavic, e.g. RU nom. sg. *bób*, gen. *bobá* and nom. sg. *žená*, acc. *ženú*. Apart from a few special cases, van Wijk ascribed most accent alternations found in Slavic to the effects of Saussure's Law, including cases "mit sekundärem, erst in einer verhältnismässig jungen Periode entstandenem Akute",[73] e.g. RU prs. 2 sg. *nesëš'*, 3 sg. *nesët* etc., gen. pl. *beregóv*.

Above all the fact that van Wijk allowed himself to assume "secondary acute tone" wherever a Slavic form has non-initial accentuation, without specifying the conditions for the appearance of the secondary tones, renders his theory unattractive from a methodological point of view. As Dybo aptly pointed out in his criticism of van Wijk's application of Saussure's Law in Slavic, the explanatory "Leichtigkeit" of a hypothesis does not imply that it is correct.[74] A thorough criticism of the view that Saussure's Law operated in Slavic is provided by Stang.[75]

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71. "Freilich ist es mir nicht möglich, die Hypothese De Saussures durch eine bessere zu ersetzen. Sollte dieselbe nicht richtig sein, so müssen wir uns mit einem non liquet begnügen." (van Wijk 1923 [1958]: 75).
72. An alternative interpretation is presented in Ch. 3 § 3.1.
73. Van Wijk (1923 [1958]: 51).
74. Dybo (1977: 593).
75. Stang (1957 [1965]: 15–20).

Kuryłowicz

A major break with traditional Balto-Slavic accentology was made by the Polish linguist Jerzy Kuryłowicz.[76] Taking as his point of departure an accent retraction from short medial syllables to a preceding syllable in pre-Proto-Balto-Slavic (e.g. **duk*ˈ*terin* > LI *dùkterį*) similar to the retraction that Saussure had proposed for pre-Lithuanian,[77] Kuryłowicz, unlike other authors, assumed that this retraction resulted in a rising (acute) tone if the syllable that received the accent was long, e.g. pre-PBS acc. sg. **mā*ˈ*terin* > *ˈ*mā́terin* > LI *móterį*. The acute tone that arose by retraction contrasted with the tone of originally accented long initial syllables, which became falling (circumflex), e.g. pre-PBS acc. sg. *ˈ*brāterin* > *ˈ*brãterin*. Subsequently, the correlation between accent and tone was morphologically restructured in the consonant stems, a process in which a system of *formes de fondation* and *formes fondées* played a crucial role. In the relationship between the root-accented and the mobile paradigm, the former was *fondé* on the latter. Similarly, words with a long root-vowel were *fondés* on words with a short root-vowel; the base of the system was thus constituted by the paradigm of **duk*ˈ*tē*:

	MOBILE ACC.	ROOT-ACC.
SHORT ROOT	**duk*ˈ*tē*	*ˈ*sesō*
LONG ROOT	**mā*ˈ*tē*	*ˈ*brãtē*

The tonal correlation in forms like acc. sg. *ˈ*dukterin* : *ˈ*mā́terin* vs. *ˈ*seserin* : X, where X = (*ˈ*brãterin* →) *ˈ*brā́terin*, gave rise to the morphological introduction of acute tone in root-accented words with a long root-vowel.

The coinciding accentuation of certain forms of the originally desinentially accented and root-accented paradigms with a short root-vowel, e.g. pre-PBS acc. sg. *ˈ*dukterin* and *ˈ*seserin*, caused the latter paradigm to imitate the mobility of the former; thus, the *formes fondées* pre-PBS nom. sg. *ˈ*sesō*, gen. sg. *ˈ*seseres* → **se*ˈ*sō*, **sese*ˈ*res* by analogy with the *formes de fondation* **duk*ˈ*tē*, **dukte*ˈ*res* etc. In words with a long root-vowel, on

76. I follow the exposition presented in Kuryłowicz (1952 [1958]: 162–356); cf. (1931; 1968: 111–190).
77. Thus Kuryłowicz (1949: 28; 1968: 112); cf. the alternative explanation of the process given in Kuryłowicz (1931: 27–28) (acc. sg. **sūˈnun* → *ˈ*sūnun* by analogy with the non-final accentuation of acc. sg. **dukˈterin*; subsequently, **dukˈterin* → *ˈ*dukterin* under influence of the initial accentuation of *ˈ*sūnun*), similar to the one assumed by Rasmussen (see below in this section); cf. the criticism of Pedersen (1933: 30–31).

the other hand, accentually coinciding forms like pre-PBS acc. sg. **mā́terin* and **brā́terin* gave rise to a generalisation of root-accentuation with acute tone, e.g. pre-PBS nom. sg. **mā˩tē*, gen. sg. **māte˩res* → **˩mā́tē*, **˩mā́teres* by analogy with **˩brā́tē*, **˩brā́teres*. The reason why words with a long root-vowel did not simply become mobile like words with a short root-vowel did (i.e. **˩brā́tē* → †*brā˩tē* by analogy with **mā˩tē*, like **˩sesō* → **se˩sō* by analogy with **duk˩tē*), was the "polarisation" of the contrast short vs. long root-vowel. This chain of morphological restructurings in the consonant stems resulted in a correlation between long root-vowel and root-accentuation on the one hand, and short root-vowel and mobile accentuation on the other.

The correlation of accentuation and root quantity was subsequently introduced in the vowel stems, which were subordinated morphophonologically to the "structurally explicite" consonant stems (consisting synchronically of root, suffix and ending). Vowel stems with a long root-vowel obtained acute tone and root-accentuation, while words with a short root-vowel acquired circumflex tone and mobile accentuation. The effect of this morphophonological restructuring was a loss of the continuity between the accentuation of a word in Proto-Indo-European and its reflex in Balto-Slavic. As we have seen above, however, the curves of the mobile accent paradigms were inherited from the proto-language, ultimately reflecting the accent alternations of hysterokinetic consonant stems of the type **dʰugə₂tér-* and introduced analogically in vowel stems with a short root-syllable. As for the Balto-Slavic desinentially accented words and root-accented words with a circumflex root, Kuryłowicz regarded them as derived nouns, where the morphological correlation of accent and tone did not take place.

An important point in Kuryłowicz's Balto-Slavic accentology was his rejection of Saussure's Law in Slavic, a view which was accepted by Stang and, subsequently, by most accentologists of the last half of the twentieth century. Kuryłowicz's new formulation of Saussure's and Leskien's Laws in Lithuanian, mentioned in Ch. 3 § 1.3, has hardly been accepted by any Balticist. Generally speaking, while Kuryłowicz's theory of Balto-Slavic accentuation is often mentioned in the literature, it has found very little support.[78] To quote the evaluation recently given by one of today's most well-informed accentologists: "It is only in hindsight that we can see that Kuryłowicz has inspired later accentological work only on a very limited scale, if at all."[79]

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78. Criticism of various aspects of Kuryłowicz's accentology is found in Pedersen (1933: 30–31); Endzelīns (1938 [1980]); Sadnik (1959: 15–16, 21–22); Hamp (1959: 39–43); Tronskij (1962: 105–109); Stang (1966a: 130–139, 141).
79. Vermeer (1998: 243).

Stang

A turning point in Baltic and Slavic accentology is constituted by Christian S. Stang's *Slavonic accentuation* (1957).[80] Following Kuryłowicz's rejection of the traditional view that Saussure's Law had operated in Slavic, Stang identified the accent curves of the Slavic AP *c* with those of the Lithuanian AP 3. He reconstructed the Slavic AP *b* with columnar accentuation on the first syllable of the desinence, regarding the neoacute tone on the root in certain forms of the paradigm as the result of an accent retraction from certain syllables, an idea originally advanced by Stjepan Ivšić.[81] Stang also emphasised the relationship between prosody and morphology, establishing three Common Slavic accent paradigms: AP *a* with immobile root-accentuation and an acute root-vowel; AP *b* with immobile accentuation on the first syllable of the desinence; and AP *c* with mobile accentuation and a circumflex root-vowel.

Accepting Meillet's assumption of original mobility in the *ā*-, *i*- and *u*-stems and suggesting that even *o*-stems could be mobile in Proto-Indo-European,[82] Stang reconstructed a Proto-Indo-European paradigmatic accentuation system which comes close to that of Slavic. A few analogical developments had systemic effects: originally root-accented nouns with a non-acute root have become analogically mobile in Slavic, and acute roots of mobile words have become circumflex (Meillet's Law). In Lithuanian, words with immobile desinential accentuation have analogically joined the mobile paradigms.

Stang's rejection of Saussure's Law in Slavic and his identification of the Slavic AP *c* with the Lithuanian AP 3 resulted in a clear delimitation of the problem of paradigmatic accent mobility in Baltic and Slavic. Similarly, his interpretation of the Slavic neoacute tone as the result of an accent retraction and the clear establishment of three accent paradigms significantly facilitated a more systematic treatment of the Baltic and Slavic accentuation sys-

80. See Vermeer (1998) for a survey, with numerous quotations and references, of the impact of *Slavonic accentuation* on Slavic accentology.

81. Ivšić (1911 [1971]: 163–182).

82. Stang (1957 [1965]: 175–179; 1966a: 304–307; 1969 [1970]: 258–259); in (1975: 50), Stang expressed an apparently somewhat modified view on the pre-Proto-Germanic, Baltic and Slavic accentual mobility: "Ich bin geneigt anzunehmen, dass wir es hier mit einem Erbe aus gemeinieur. Zeit zu tun haben. Möglich wäre aber auch, dass wir einer ieur. dialektalen Eigentümlichkeit gegenüberstehen, die für die Mundarten charakteristisch war, die sich später zum Germanischen und Baltoslavischen entwickeln sollten."

tems. While these outcomes of Stang's work have been generally, though not universally,[83] accepted, his adherence to Meillet's view that the mobile paradigms of Baltic and Slavic can be traced directly back to Proto-Indo-European has found less support; see § 5 below for criticism of the view. The most important elaboration of Stang's theory is that of Dybo and Illič-Svityč who demonstrated that the Slavic AP *a* and *b* are in complementary distribution, a view which Stang himself did not accept.[84]

Sadnik

In her *Slavische Akzentuation* (1959) Linda Sadnik assumed that the incorporation of Proto-Indo-European consonant stems in the *i*-stem declension, e.g. PIE root-noun **nókʷts* → LI *naktìs*, PS *ˌ*nakti*, played an important role in the introduction of mobility in the Baltic and Slavic vowel stems. Her somewhat indecisive approach to a number of central issues renders her view on the development of the Baltic and Slavic accentuation systems unclear in many respects. Characteristically, she abstained from taking a position on the question of the operation of Saussure's Law in Slavic: "Stichhaltige Einwände GEGEN eine solche Akzentverlagerung auf slavischem Boden lassen sich jedoch ebensowenig erbringen wie schlüssige Beweise FÜR sie geführt werden können."[85] Published shortly after Stang's *Slavonic accentuation*, *Slavische Akzentuation* did not achieve any noteworthy significance in the study of Slavic and Baltic accentuation.

Illič-Svityč and Dybo

Strongly influenced by the views presented in Stang's *Slavonic accentuation*, the two Soviet scholars V. I. Illič-Svityč and V. A. Dybo have elaborated the Norwegian scholar's theory on a number of points, attaching even more importance than Stang to the morphological aspects of accentology. Despite his premature death in 1966 just before his thirty-second birthday, Illič-Svityč offered significant contributions to the field of Baltic and Slavic accentology, first of all through his monograph *Именная акцентуация в балтийском и славянском* [Nominal accentuation in Baltic and Slavic] (1963), which appeared in an English translation in (1979). Dybo has pub-

83. Saussure's Law is still accepted for Slavic by scholars like Stankiewicz and Klingenschmitt (see below in this section).
84. Stang (1966a: 288–289 fn. 2); see also Mathiassen (1983).
85. Sadnik (1959: 24, emphasis as in original).

lished continuously since the late 1950s and is still an active member of the community of scholars; his most important publication on Slavic accentology is *Славянская акцентология* [Slavic accentology] (1981). Scholars like R. V. Bulatova, S. L. Nikolaev and G. I. Zamjatina, who take their point of departure in the works of Illič-Svityč and Dybo, may be regarded as associates of a "Moscow Accentological School".[86] I shall limit this presentation to the works, primarily by Illič-Svityč and Dybo, that are relevant to the prehistory of the Balto-Slavic accentual mobility.[87]

Following Kuryłowicz and Stang in rejecting the operation of Saussure's Law in Slavic, Illič-Svityč and Dybo accepted Stang's identification of the Slavic AP *c* with the Lithuanian AP 3. An important contribution to the clarification of the development of the Balto-Slavic accent paradigms was the demonstration that the Slavic AP *a* and *b* were originally in complementary distribution in accordance with the tone of the root, acute or non-acute. Arguing that words belonging to AP *a* and *b* reflect Proto-Indo-European root-accented words, Illič-Svityč and Dybo proposed an accent law to account for the desinential accentuation of AP *b*: in pre-Proto-Slavic the accent was advanced from a non-acute syllable to a following syllable in immobile paradigms, e.g. **ˈžena* > CS **ženà*. This accent advancement later became known as "Dybo's Law" or "Illič-Svityč's Law"; see Ch. 3 § 4.3. By tracing the Slavic AP *a* and *b* back to one root-accented paradigm, Illič-Svityč and Dybo were able to explain why the Slavic AP *a* only comprises words with an acute root and why the Slavic AP *b* does not have a corresponding paradigm with desinential accentuation in Lithuanian. A systematic exception to the basic correspondences proposed by the Moscow scholars is constituted by originally root-accented masculine *o*-stems, which display a tendency of becoming mobile in both Baltic and Slavic. The original state of affairs is best preserved in Old and dialectal Lithuanian and in certain peripheral Slavic dialects.

While the derivation of the Baltic and Slavic (before Dybo's Law) root-accented paradigms from corresponding Proto-Indo-European paradigms is straightforward, the origin of the mobile paradigms is less certain. Apparently inclined to agree with Meillet and Stang in regarding the mobility an archaism, Illič-Svityč stated that "[m]obile accent in Baltic and Slavic, there-

86. Vermeer (2001: 131); Hendriks (2003: 117); cf. Dybo (1987: 502).
87. For an introduction to the theories of the Moscow Accentological School see Lehfeldt (1993 [2001]); cf. (1983; 1992); Vermeer (1998: 244–245); note the criticism of certain aspects of the Moscow Accentological School in Vermeer (2001); Hendriks (2003).

fore, may not be a Balto-Slavic innovation, but rather an archaism which has been eliminated in Sanskrit and Greek", adding, however, that "[t]he present state of accentual studies in the last two languages is such that an unambiguous answer to this question cannot be given."[88]

Dybo's view on the origin of the Balto-Slavic mobile paradigms differs from that of Illič-Svityč and must be seen in connection with Dybo's conception of the Balto-Slavic prosodic system. According to Dybo, in Proto-Balto-Slavic all morphemes were characterised by one of two prosodic "valencies", either "dominant" ("high", "+") or "recessive" ("low", "−"). Immobile words had a dominant root, mobile words had a recessive root. Correspondingly, desinences that were accented in the mobile paradigms were dominant, those that were unaccented were recessive. A word-form like nom. sg. CS **zimà* AP *c* thus had a recessive root and a dominant desinence, while acc. sg. **zîmǫ* had a recessive desinence; in CS nom. sg. **bắba*, acc. **bắbǫ*, the root was dominant. The accent of a given word-form was assigned in correspondence with the prosodic properties of its constituent morphemes: "иктус ставится в начале первой последовательности морфем высшей валентности" ["the ictus falls on the beginning of the first succession of morphemes with high valency"].[89] A word consisting only of morphemes with low valency was accented on the initial syllable, which was presumably phonetically distinct from an accented syllable with high valency. In this Balto-Slavic system, apparently, the accent, being predictable on the basis of the valencies, was redundant.[90]

The valencies, according to Dybo, are not a mere morphological means of describing the accentual alternations found in Baltic and Slavic, but they had a phonetic reality:

> [З]а абстрактными "минусами" и "плюсами" кроются какие-то пока неизвестные просодические реалии, причем реалии эти были в значительной мере фонетическими еще в балто-славянский период, сосуществуя с акутовой и циркумфлексовой интонацией (или иными просодическими характеристиками, рефлексами которых эти интонации являются). Мы вплотную приблизились к доказательству того, что балто-

88. Illič-Svityč (1979: 146, see also 10–11).
89. Dybo (1980: 147 = 1981: 261 = 2000b: 14, sentence emphasised in originals); cf. (2000b: 11); Lehfeldt (1993 [2001]: 69).
90. Cf. Dybo (2000b: 6).

> славянская акцентная система является отображением индоевропейского противопоставления двух фонологических тонов (регистров)[91]
>
> [Behind the abstract "minuses" and "pluses" lie some hitherto unknown prosodic realia; and during the Balto-Slavic period these realia were still to a large extent phonetic, coexisting with the acute and circumflex intonation (or other prosodic characteristics reflected by these intonations). We are very close to proving that the Balto-Slavic accentuation system reflects an Indo-European opposition of two phonological tones (registers)]

Since the accent curves of the various Balto-Slavic paradigms are directly derivable from the distribution of dominant and recessive morphemes, and since the valency of a given morpheme is inherited from the Indo-European proto-language, Dybo's hypothesis implies that the Balto-Slavic accent curves represent Indo-European inheritance.[92] Despite its rather different form this hypothesis may therefore be grouped together with Meillet's and Stang's view that the mobile paradigms of Balto-Slavic are an archaism compared to the immobile paradigms of Vedic and Greek; see § 5 below for criticism of the view.

The works of Illič-Svityč and Dybo have exerted decisive influence on later Balto-Slavic accentological investigations. Dybo's Law and the Moscow scholars' view on the correspondences between the Baltic, Slavic and Proto-Indo-European accent paradigms are accepted by prominent scholars such as Garde, Ebeling, Kortlandt, Rasmussen and others; cf. Ch. 3 § 4.3. The view that the Balto-Slavic valencies constitute evidence for a Proto-Indo-European tonal system is apparently recognised by scholars from Leiden, who connect it with evidence from other Indo-European languages; see Ch. 2 § 4.1.[93]

Ebeling

The outlines of the theory of an "early offshoot"[94] of the Moscow Accentological School were drawn by Carl Ebeling in a paper entitled "Historical

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91. Dybo, Zamjatina and Nikolaev (1990: 107–108); cf. Dybo, Nikolaev and Starostin (1978: 20); Dybo (1980: 148; 1981: 262).
92. See Dybo (1960: 119).
93. The *modus operandi* of the Moscow Accentological School is criticised by Vermeer (2001); Hendriks (2003); see also Reinhart (1992: 371–375).
94. Vermeer (1998: 247); Hendriks (2003: 112).

laws of Slavic accentuation" (1967).[95] Stressing the importance of establishing a relative chronology of the various prosodic developments from Proto-Indo-European to Common Slavic, a point which remained central to the Dutch accentologists, Ebeling presented an explicit and formalised presentation of his theory of the prehistory of the Common Slavic prosodic system. He maintained that the agreement between the Baltic and Slavic accentuation systems may be explained by assuming "a similar, but not identical development, starting from the same I.-E. pattern."[96] Accepting the "main points of Pedersen's theory for Baltic"[97] presented in *Études lituaniennes*, Ebeling considered only Slavic data.

Taking as his point of departure the framework established by Dybo and Illič-Svityč on the basis of Stang's conclusions, Ebeling also rejected the traditional view that Saussure's Law had operated in Slavic, and accepted the interpretation of the Slavic desinentially accented paradigms as a result of Dybo's Law. In contrast to Stang, who considered the Slavic accentual mobility an archaism inherited from Proto-Indo-European, Ebeling explained the Slavic mobility as the result of a series of paradigmatic levellings. The first step towards accentual mobility in Slavic was the "Law of marginal oxytones":

> If in one paradigm x x́ and x x́ x,
> then x x́ x > x x x́.[98]

This law was followed by the "Law of maximal contrasts", which changed a final accent into an initial accent in word-forms contrasting with longer finally accented forms in the same paradigm. Later, a "Reshuffling of mobile paradigms" operated, according to which disyllabic word-forms with final accentuation received initial accentuation if contrasting with monosyllabic or initially accented disyllabic word-forms in the same paradigm, "unless the final accent is motivated because it helps avoiding homonymy."[99]

The impact of Ebeling's theory on later accentological investigations is significant, above all indirectly through Kortlandt's revision of it. Much of my criticism of Kortlandt's views presented in § 5 below is relevant also to

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95. See also Ebeling (1963); cf. Kortlandt (1975: x); Vermeer (1984: 334–335; 1998: 245–247); and the enthusiastic remarks of Birnbaum (1975 [1979]: 245–246).
96. Ebeling (1967: 579).
97. Ebeling (1967: 579).
98. Ebeling (1967: 580); "x" symbolises a syllable; I write "x́" for Ebeling's "x^{1}" to denote an accented syllable.
99. Ebeling (1967: 584).

Ebeling's theory, first of all my methodologically motivated scepticism about analogical "laws" like those sketched above.

Kortlandt

Among the theories of the development of the Baltic and Slavic accentuation systems, probably the most detailed, elaborate and yet coherent one is that of the Dutch scholar Frederik Kortlandt, a student of Ebeling.[100] Kortlandt's *Slavic accentuation* (1975) contains a comprehensive treatment of the development of the Baltic and Slavic accentuation systems, subsequently elaborated on in numerous articles. While "[r]etaining the general chronological line" of Ebeling's theory, Kortlandt proposes "different solutions for a number of details."[101] Like Ebeling, Kortlandt accepts many of the conclusions reached by Dybo and Illič-Svityč, including the assumption that Saussure's Law did not operate in Slavic.

The chronology outlined below constitutes the basis of Kortlandt's theory of the development of the Balto-Slavic accentuation system;[102] changes (1) to (4) belong to Kortlandt's "Early Balto-Slavic" period, changes (5) to (6) to the "Late Balto-Slavic" period:[103]

1 "Loss of PIE accentual mobility, of which there is no trace outside the nominal flexion of the consonant stems".
2 "Pedersen's law: the stress was retracted from medial syllables in mobile accent paradigms".
3 "Barytonesis: the retraction of the stress spread analogically to vocalic stems in the case forms where Pedersen's law applied".
4 "Oxytonesis: the stress is shifted from a medial syllable to the end of the word in paradigms with end-stressed forms".

100. See Vermeer (1998: 245–247).
101. Kortlandt (1975: x).
102. Kortlandt has recently (forthc. [2006]) presented an alternative view on the Proto-Indo-European paradigmatic accentuation system and, consequently, on the prehistory of the Balto-Slavic mobile accent paradigms. The following paragraphs are concerned with Kortlandt's original theory; Kortlandt's modified views are discussed in the Postscript of this book.
103. Kortlandt (2006a: 359); almost identically (1994 [2002]: 3–6); cf. (1975: xii and passim; 1977: 320–323); Derksen (1991: 75–79; 1996: 25–26; 2008: 4); Vermeer (1984: 336).

5 "Hirt's law: the stress was retracted if the vowel of the pretonic syllable was immediately followed by a laryngeal".
6 "Winter's law: the PIE glottalic stops dissolved into a laryngeal and a buccal part. The former merged with the reflex of the PIE laryngeals and the latter with the reflex of the lenes stops".[104]
7 The late Balto-Slavic accent retraction:[105] "Retraction of the stress from final open syllables of disyllabic word forms unless the preceding syllable was closed by an obstruent".

Like Pedersen, Kuryłowicz, Ebeling and others, Kortlandt accepts Saussure's assumption of an accent retraction from medial syllables in certain consonant stems (change (2) above) and a subsequent imitation of the retraction by the vowel stems (change (3)). As in Ebeling's theory, the Balto-Slavic mobile paradigms are fundamentally the result of a series of analogical laws. An important difference to the development proposed by Ebeling is change (7), a phonetic accent retraction which accounts above all for the predominantly non-desinential accentuation of the singular of the mobile *o*-stems in Lithuanian and Slavic.

Characteristic of Kortlandt's methodological approach, which again resembles that of Ebeling, is the high number of "laws", either regular sound laws or morphological laws, that are invoked to account for various phenomena. Laws of the former type are responsible for the step-wise loss of laryngeals in Slavic dependent on their position in the word with respect to the accent. Similarly, the irregular accentuation of RU nom. pl. *déti*, gen. *detéj*, dat. *détjam*, instr. *det'mí*, loc. *détjax* (from **dē̂ti*, **dětьjь̀*, **dětьmъ̀*, **dětьmì*, *dětьxь̀*) is accounted for by a Slavic retraction of the accent from a final reduced vowel to a preceding syllable or, if this syllable is in medial position and contains a reduced vowel not followed by **i̯*, to the beginning of the word – at a stage, by the way, where medial syllables containing reduced vowels remain accented in cases like CS nom. sg. **otь̀cь*. The morphological type of laws will be discussed in § 5 below.

While not of direct relevance to Kortlandt's view on the development of the Balto-Slavic paradigmatic mobility, it is worth noting that he adheres to the "glottalic theory", a framework that sets him off from the majority of Indo-Europeanists. Furthermore, the Proto-Indo-European morphological

104. This law, which was presented by Winter in 1976, does not appear in Kortlandt's earliest writings.
105. Kortlandt has informed me that he considers "Ebeling's Law" (e.g. Kortlandt 1975: 4–7; Collinge 1985 [1996]: 35–36; Derksen 1991: 78) an inappropriate name for this accent retraction; cf. Derksen (2008: 5).

system reconstructed by Kortlandt and its development in various daughter languages in a number of respects diverge from the *communis opinio*. Kortlandt also differs from most other scholars in assuming that the Proto-Indo-European laryngeals were preserved as a segmental feature until quite recently in the separate development of Baltic and Slavic. The fact that many of Kortlandt's assumptions on various matters, justified or not as they may be, are shared primarily by scholars from Kortlandt's own environment in Leiden, to a considerable extent impedes communication with other scholars. This also applies to questions of Balto-Slavic accentology. Criticism of Kortlandt's theory on the rise of paradigmatic mobility in Balto-Slavic is found in § 5 below.[106]

Feldstein

Another author who accepts most of Illič-Svityč and Dybo's conclusions on the Balto-Slavic accentuation system is Ronald F. Feldstein, in whose dissertation *The prosodic system of Common Slavic* (1973) we find the outlines of an interesting theory of the origin of the Lithuanian and Slavic mobile accent paradigms. Accepting the view that the Balto-Slavic mobile accent paradigms reflect originally desinentially accented paradigms, Feldstein follows Illič-Svityč in assuming that Hirt's Law consisted in an accent retraction to roots containing **Vh*. Subsequently, in roots containing an apophonic long vowel or a vocalic laryngeal, e.g. **gʰoləu̯-*, there was a pre-Proto-Balto-Slavic "retraction of the oxytonic stress to the root-vowel in cases where no vowel length exists in the desinence",[107] giving rise to the accent curves found in the Lithuanian AP 3: nom. sg. *galvà* with an acute (long) desinence, but acc. *gálvą* with a circumflex (short) desinence. Feldstein explains the accent curves of the Lithuanian AP 4 as originating in

106. Various other aspects of Kortlandt's accentology are criticised in Schelesniker (1975); Johnson (1980), for which cf. Vermeer (1984); Rasmussen (1987 [1999]: 233–234; 1989b: 160–161; 1992b [1999]: 472–486), rejecting Kortlandt's "Korrelierung der baltischen und slavischen Akzentfeinheiten mit einer gestaffelten Abwicklung der Laryngale in denselben Sprachen"; Jasanoff (2004b), which is a reply to Kortlandt (2004a); see also the rejoinder of Kortlandt (2005b). As mentioned above, the Postscript of this book contains a discussion of Kortlandt's recent ideas.
107. Feldstein (1973: 46).

> many stress retractions to the root syllable in individual paradigmatic forms, converting the paradigm as a whole to the circumflex mobile type, since the retractions to short syllables produced circumflex stress.[108]

In Slavic, the two mobile accent paradigms have merged into one mobile paradigm, AP *c*.

As far as I am aware, Feldstein does not further specify the conditions for the accent retractions in the desinentially accented acute and circumflex stems. His hypothesis on the origin of the Balto-Slavic mobility seems in certain respects to resemble the one presented in this study, but due to the limited degree of elaboration of this aspect of his theory I shall not consider it further here.

Stankiewicz

Confessing himself to be an advocate of "classical" Slavic accentology, Edward Stankiewicz states that

> the revision of Balto-Slavic accentology initiated by Kuryłowicz and Stang has not succeeded any more than some of the traditional approaches in clarifying the formation of the Common Slavic accentual system. In effect it has raised more questions than it has solved and has far less to offer than the "classical" reconstruction[109]

Stressing the importance of a morphophonemic approach to accentology, Stankiewicz explains the Lithuanian and Slavic accent curves as the result of Saussure's Law (perceived as a correlation between accent and acute tone) and the influence of the consonant stems on the vowel stems. At least in his early work, Stankiewicz rejects the view that the Common Slavic accent is related to that of the Indo-European proto-language.[110]

Stankiewicz's views on the history of the Baltic and Slavic accentuation systems are rather abstruse, often bordering the incomprehensible. They have not exerted any noticeable influence on the accentological work of other scholars and will only be referred to occasionally in the present study.[111]

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108. Feldstein (1973: 48).
109. Stankiewicz (1993: 10); for Stankiewicz's views on the development of the Lithuanian and Slavic accentuation systems, see also (1988; 1995).
110. Stankiewicz (1968 [1979]: 86 fn. 3).
111. Note the review of Stankiewicz (1979) by Kortlandt (1980); the reply in Stankiewicz (1982); and the rejoinder of Kortlandt (1982); see also the reviews of Stankiewicz (1993) by Priestly (1993) and Lehfeldt (1994).

Kiparsky

In an article entitled "The inflectional accent in Indo-European" (1973), Paul Kiparsky applies a generative approach to questions of the prosodic development of Vedic, Greek, Baltic and Slavic.[112] Rejecting Kuryłowicz's views on the analogical origin of the Greek tones in desinences, Kiparsky assumes a set of rules that account for both the accentuation of the Greek consonant stems and the tones of the desinential syllables. For "unaccented" stems, i.e. words with mobile or desinential accentuation, the rules assigning the accent are (a) "Strong cases have presuffixal accent" and (b) "Weak cases have post-stem accent". As these rules apply to moras in Greek, they predict both the accentuation of a strong case like acc. sg. *πόδα* (*pód+a*), *φυγήν* (*pʰug+eé+n*) and a weak case like gen. sg. *ποδός* (*pod+ós*), *φυγῆς* (*pʰug+ée+s*).

In Lithuanian, instead of the original "central" accentual mobility preserved in Greek, we find a system of marginal mobility: (a) "Strong cases have word-initial accent" and (b) "Weak cases have word-final accent", e.g. acc. pl. **galv+á́+s*, instr. pl. **galv+á́+mis* > **gálv+ā+s*, **galv+ā+mís* > LI *gálvas*, *galvomìs*. Although Kiparsky stresses that his hypothesis is a "very different matter" from the idea of Saussure and Kuryłowicz that the mobility of the vowel stems is analogical to that of the consonant stems, I agree with Garde that the difference is difficult to perceive.[113]

Since Kiparsky's analysis of the Balto-Slavic accent paradigms is not carried out systematically, the Slavic paradigmatic accentuation system being barely touched upon, it is unclear how he explains counterexamples to his rules, e.g. LI gen. sg. *lángo* with initial instead of expected final accent. Even if such forms would find an explanation within Kiparsky's hypothesis, I find it doubtful whether his approach to prosodic change represents a progress compared to traditional methods of comparative linguistics. As far as I am aware, Kiparsky's views have only played a marginal role in the debate of the prehistory of the Baltic and Slavic accentuation systems. Even Garde, who characterised Kiparsky's theory as "l'une des plus remarquables synthèses jamais tentées des problèmes d'accentologie comparée i. e. (gr., skr., lit.)"[114] and devoted an appendix to it in his (1976) book, rejected it entirely.

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112. Cf. Kiparsky and Halle (1977); Halle and Kiparsky (1981); criticism of Kiparsky (1973) is found in Garde (1976, 2: 463–469); criticism of Halle and Kiparsky (1981) is found in Kortlandt (1983a).
113. Garde (1976, 2: 467).
114. Garde (1976, 2: 463); cf. Szemerényi (1985: 17–18).

Garde

Based on Illič-Svityč and Dybo's development of Stang's conception of the Baltic and Slavic accentuation systems, Paul Garde's *Histoire de l'accentuation slave* (1976) was initially undertaken as an introduction to Slavic accentology without addition of new thoughts. The achievement of previous research, however, appeared to be largely "inconsistant et contradictoire",[115] forcing Garde to give up this task and provide alternative solutions to several problems; one may note his limitation of Dybo's Law to East and South Slavic and his hypothesis of a late, post-Proto-Indo-European univerbation of stems and endings. In contrast to for example Maretić's (1890) paper or Illič-Svityč's (1963) monograph, Garde's *Histoire de l'accentuation slave* treats both nominal and verbal accentuation. It is one of the clearest and most readable contributions to the field.

Garde accepts the framework proposed by Illič-Svityč and Dybo for the correspondences between the accent paradigms of Balto-Slavic and Vedic-Greek. Recognising Roman Jakobsons's analysis of certain Common Slavic word-forms as phonologically unaccented,[116] Garde traces this class back to Proto-Balto-Slavic, adducing evidence from Lithuanian and Latvian for its existence.[117] Garde's analysis of the Baltic and Slavic accentuation systems results in a division of all Proto-Balto-Slavic morphemes in a "strong" (or "dominant") and a "weak" (or "recessive") class, similar to Dybo's valencies. While Dybo does not give a historical explanation of the distribution of valencies, Garde maintains that strong and weak stems were originally accented on a non-final and a final syllable respectively, e.g. PIE **dʰu̯óro-* (strong stem) vs. **deiu̯ó-* (weak stem). The endings were strong if they contained a **CV* sequence, otherwise they were weak, e.g. PIE instr. pl. **-mīs* (strong ending) vs. acc. sg. **-m* (weak ending), cf. the accentuation of LI *galvomìs* vs. *gálvą*. Apart from the phonological difference between strong and weak endings, the former were more complex, the latter more simple "par leur valeur grammaticale".[118]

As for the origin of the Balto-Slavic paradigmatic mobility, Garde rejects an accent retraction of acc. sg. **duk|terin* > LI *dùkterį* as proposed by Saussure. Instead, he maintains that stems and endings were still separate words, *mots-thèmes* and *mots-désinences* respectively, in a period posterior to the dis-

115. Garde (1976, 1: viii).
116. Jakobson (1963: 160–161).
117. Cf. Dybo (1981: 54); this idea is rejected by Kortlandt (1978a: 72–76).
118. Garde (1976, 1: 342).

solution of Proto-Indo-European. The strong *mots-désinences* were accented in the proto-language, the weak ones were unaccented. The Balto-Slavic mobility arose as a result of the univerbation of *mots-désinences* of varying valency with a weak *mot-thème*, which lost its accent because of the univerbation. When the *mot-désinence* was strong (and, accordingly, accented), the new word-form received final accent; when the *mot-désinence* was weak (and unaccented) the word-form became unaccented. For example, the combination of the weak *mots-thèmes* PIE **dʰugəₓtér*, **gʰoləu̯ā́*[119] with the weak *mot-désinence* of the accusative singular produced PIE **dʰugəₓtér* + **m̥*, **gʰoləu̯ā́* + **m*; combined with the strong *mot-désinence* of the instrumental plural, the result was PIE **dʰugəₓtér* + **mís*, **gʰoləu̯ā́* + **mís*. When the univerbation took place, these forms developed into pre-PBS **ˌdʰugəₓterm̥*, **ˌgʰoləu̯ām* and **dʰugəₓtermís*, **gʰoləu̯āmís* (> LI *dùkterį*, *gálvą*; *dukterimìs*, *galvomìs*). In Vedic and Greek, on the other hand, the univerbation of a weak *mot-thème* with strong and weak *mots-désinences* yielded stem-final accentuation or ending-accentuation regardless of the valency of the ending, e.g. VED acc. sg. *duhitáram*, *jihvā́m*; instr. pl. *duhitṛ́bhiḥ*, *jihvā́bhiḥ*. In all systems, a strong *mot-thème* retained its accent in combination with a *mot-désinence* of any valency.

Although Garde explicitly maintains that the Balto-Slavic accentuation system represents an innovation vis-à-vis the Vedic-Greek system, in his theory Balto-Slavic preserves an original distinction that was lost in Vedic and Greek, viz. that between strong and weak endings in vowel stems. In the sense that the Balto-Slavic paradigmatic accentuation system preserves original distinctions that have been lost in Vedic and Greek, it is more archaic. Garde's standpoint therefore comes closer to those of Meillet, Stang and Dybo than to those of Pedersen and Kortlandt.

As can be seen from the short presentation given above, Garde's conception of the Proto-Indo-European starting-point differs significantly from that of other scholars. His hypothesis that there was a word boundary between stem and ending (e.g. **dʰugəₓtér* + **m̥*) at the last stage of Proto-Indo-European, which serves the purpose of offering a phonetic explanation of Pedersen's Law and the mobility of the vowel stems in Balto-Slavic, is quite improbable and cannot be accepted. Even if, for the sake of argument, the hypothesis were accepted, the accentuation of several specific word-forms, e.g. LI gen. sg. *galvõs* (from PIE **gʰoləu̯ā́* + **s*), remains unexplained. While numerous aspects of Garde's book represent valuable contributions to our

119. These and the following reconstructions are adapted to the notational system used in the present study.

understanding of the Baltic and Slavic accentuation systems, his hypothesis on the origin of the Balto-Slavic mobile accent paradigms is not convincing.[120]

Rasmussen

The correspondences established by Illič-Svityč and Dybo between the Proto-Indo-European and Balto-Slavic accentuation types are recognised also by Jens Elmegård Rasmussen, whose paper "Die Vorgeschichte der baltoslavischen Akzentuierung" (1992b [1999]) contains an overview of the development of the Baltic and Slavic accentuation systems. Following Saussure, Pedersen and Kortlandt in assuming that the origin of the Lithuanian and Balto-Slavic mobility is to be sought in hysterokinetic consonant stems, Rasmussen gives a somewhat different explanation of the process. Instead of assuming an accent retraction from medial syllables in the consonant stems, Rasmussen, like the young Kuryłowicz,[121] supposes that the alternation between final and penultimate accentuation in PIE nom. sg. **dʰugə₂tḗr*, acc. **dʰugə₂térm̥*, gen. **dʰugə₂trós* was imitated directly by the desinentially accented vowel stems, yielding the mobile paradigm of LI nom. sg. *galvà*, acc. *gálvą*, gen. *galvõs*. Subsequently, the accent alternations of disyllabic vowel stems were interpreted as marginal mobility and imitated by the consonant stems, yielding LI nom. sg. *duktẽ*, acc. *dùkterį*, gen. *dukterès* (> *dukteřs*).[122] Rasmussen explains the prevailing initial accentuation of the singular of the *o*-stems as a result of the analogical influence of the accusative singular on the rest of the singular forms.

The view that the paradigmatic mobility of the vowel stems has arisen as the result of an analogical imitation of the mobility of the consonant stems is criticised in § 5 below.

Klingenschmitt

One of the few scholars of the last half century who have not accepted Stang's new framework of Baltic and Slavic accentology, Gert Klingenschmitt, has more in common with traditional accentologists than most of his contempo-

120. A detailed review of Garde's book including interesting confrontations with Kortlandt's theory is found in Kortlandt (1978a); see also the reviews by Kuryłowicz (1977); Halle and Kiparsky (1981).
121. Kuryłowicz (1931: 27–28).
122. See Rasmussen (1992a [1999]: 544–545; 1996 [1999]: 576–577).

raries have. A presentation of Klingenschmitt's Balto-Slavic accentology is rendered rather difficult by the fact that we do not have at our disposal an overall picture of his theory.[123] Nevertheless, his theory is referred to in the work of other scholars and it seems appropriate to include an outline of it here.[124] The starting point of Klingenschmitt's theory is a pre-Proto-Balto-Slavic accent advancement from a circumflex penultimate to an acute final syllable (Saussure's Law), e.g. nom. sg. *ˈ*rañkā́*[125] > PBS *rañˈkā́* > LI *rankà*, CS *rǫkà*; instr. sg. *ˈ*rãtṓ* > PBS *rãˈtṓ* > LI *ratù*. In Lithuanian a subsequent series of accent retractions (from *-ˈ*ãs*; from circumflex medial syllables; from circumflex long vowels and diphthongs in absolute final position) resulted in the elision of the desinentially accented types. In Slavic, apart from an accent retraction similar to Stang's Law, an important factor in the shaping of the mobile paradigms was the "Polarisierung":

> Eine lautgesetzlich entstandene innerparadigmatische Akzentbewegung bei dem einen Akzenttyp zieht im Falle der zweisilbigen Stämme mit nicht akutierter Anfangssilbe eine analogische gegenläufige Akzentbewegung bei de[m] anderen Akzenttyp nach sich[126]

This analogical principle is responsible for the accentuation of forms like CS loc. pl. *zǫbě́xъ (an originally root-accented noun), which has arisen by polarisation triggered by the phonetic retraction in *stòlěxъ < *staˈlaĩšu (an originally desinentially accented noun). While some originally desinentially accented *ā*-stems have preserved the original accentuation, others have joined the mobile paradigm, introducing desinential accentuation in cases where Saussure's Law had not operated, e.g. gen. sg. *rǫkỳ, loc. sg. *rǫcè. Klingenschmitt accepts neither Hirt's Law nor Dybo's Law.

The virtual absence of criticism of Klingenschmitt's theory is presumably due to the above-mentioned fact that the theory is only fragmentarily known to the public. It should be noted that the principle of polarisation, in my opin-

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123. Cf. Hock (2005: 4 with fn. 7, 10 with fn. 23).

124. The following is based on Klingenschmitt (1992: passim; 1994: 248–251); and three handouts on Slavic accentuation: Klingenschmitt (1989; 1993; [no date]); cf. Schaffner (2001: 103–105 (masculine *o*-stems), 109–111 (neuter *o*-stems), 267–268 (thematic adjectives), 366–368 (*ā*-stems), 442–446 (*i*-stems), 80 (*ūs*-stems), 83, 90–91, 525 (*n*-stems), 209 (neuter *nt*-stems), 595–596 (neuter *s*-stems), 332 fn. 21 (Hirt's Law)). Klingenschmitt's accentology appears to be at least partly accepted by Eichner (1985: 159–160 with fnn. 145–147).

125. I have adapted Klingenschmitt's reconstructions to the notational system used here.

126. Klingenschmitt (1993: 2).

ion, would require such comprehensive linguistic awareness of the language speakers as to make it quite improbable.

Overview of theories

The following table is an attempt at a taxonomic presentation of some of the most prominent scholars who have presented their views on the origin of Balto-Slavic accentual mobility in vowel stems. Some of the authors mentioned above – Brandt, Finck, Saussure, Sadnik and Illič-Svityč – do not have a clear position on the points of reference given in the table and are thus not included. The table obviously represents a simplification of the often quite complex theories of the scholars and should not be regarded as more than an attempt to give a rough overview of the various points of view. In order to make clear my own position in the discussion, I have included myself; my views on the relevant issues should appear from the following chapters of the present work. The scholars are grouped according to their positions on the following issues:

A the primary factor determining the mobility of the Balto-Slavic vowel stems;
B the domain of Saussure's Law (SL);
C the operation of Dybo's Law in Slavic.

Table 2. Views on the origin of accentual mobility in Balto-Slavic vowel stems

A	B	C	
mobility representing an archaism	SL in Lith. and Slavic	no Dybo's Law	MEILLET
	SL only in Lithuanian	no Dybo's Law	STANG
		Dybo's Law	DYBO, GARDE, KORTLANDT >2006
mobility by analogy with consonant stems	SL only in Lithuanian	Dybo's Law	EBELING, KORTLANDT <2006, RASMUSSEN, KIPARSKY (?)
		no Dybo's Law	KURYŁOWICZ
	SL neither in Lith. nor in Slavic	no Dybo's Law	MARETIĆ
	SL in Lith. and Slavic	no Dybo's Law	PEDERSEN, VAN WIJK
mobility via SL	SL in Lith. and Slavic	no Dybo's Law	HIRT, LEHR-SPŁAWIŃSKI, KLINGENSCHMITT, STANKIEWICZ (?)
mobility via loss of accent in desinences	SL neither in Lith. nor in Slavic	no Dybo's Law	SEDLÁČEK
	SL only in Lithuanian	Dybo's Law	OLANDER, FELDSTEIN (?)

5. Criticism of two hypotheses

In the preceding section I have briefly criticised some of the views presented and I have referred to relevant criticism by other scholars. In this section I shall discuss more in detail the two most influential hypotheses on the origin of the Balto-Slavic accentual mobility. The adherents of the first of these hypotheses assume that the Balto-Slavic accentual mobility in vowel stems represents an archaism which has been lost in the remaining branches of the Indo-European language family. While the theories of Meillet, Stang, Dybo and certain other scholars are quite different in a number of respects, on this point they agree and may thus be treated together. According to the supporters of the second hypothesis, the accentual mobility of the Balto-Slavic vowel stems is an analogical innovation which has taken place in the post-Proto-Indo-European prehistory of Balto-Slavic. The Balto-Slavic mobility reflects the mobility found in Proto-Indo-European consonant stems, either through a direct imitation of this mobility or indirectly through an imitation

of an accent retraction from medial syllables in the paradigms of certain consonant stems. Of the numerous theories that have this analogical imitation as their point of departure I have chosen Kortlandt's theory as a representative. While some of the criticism is specifically directed towards Kortlandt's theory, an important part of it is relevant also to the theories of other scholars with a similar starting point.

Criticism of the hypothesis of Meillet, Stang, Dybo

While Meillet and Stang maintained that the Balto-Slavic paradigmatic mobility as such is directly inherited from Proto-Indo-European in consonant stems as well as in vowel stems, Dybo's theory of the mobility as dependent on tones that are, in turn, inherited from the proto-language, is more indirect. Common to the views of Meillet, Stang and Dybo is the renunciation of an internal Balto-Slavic explanation of the accentual mobility.[127] The lack of attested accentual mobility in the Vedic and Greek vowel stems is, according to Meillet and Stang, the result of a secondary immobilisation of the accent on one and the same syllable throughout the paradigm in these languages. These scholars take the Germanic Verner doublets to be evidence of original mobility in a number of words.

The hypothesis that the accentual mobility in vowel stems is an archaism has the methodological advantage of respecting the principle which we may call the principle of *reconstructio difficilior*. Synchronically irregular systems have a better chance of having preserved something old than regular systems, which are more likely to be the result of normalisation processes. On the other hand, this principle should not prevent us from testing hypotheses according to which a regular system represents a more original stage than a corresponding irregular system, the deviations of which from the original system reflect secondary developments. Furthermore, since accentual mobility in vowel stems is found only in Baltic and Slavic, the possibility of a common innovation in the Balto-Slavic proto-language exists,[128] while in the case of the Vedic and Greek immobility we would have to posit independ-

127. Hock (1994: 175) characterises the valencies as equivalent to a "Verzicht auf eine genetische Erklärung"; see also (1992, 1: 11–12 with fnn. 9–10). The view that the Lithuanian accentual mobility in vowel stems is inherited from the proto-language is criticised by Pedersen (1933: 27–29).

128. Obviously, this argument is valid only if one accepts a Balto-Slavic unity in the sense of a pre-stage of Baltic and Slavic where common innovations could take place, cf. § 3 above, "Periodisation".

ent but identical innovations in pre-stages of these two language branches.[129] Whereas in consonant stems the relationship between ablaut grade and accent provides an internal Proto-Indo-European argument in favour of paradigmatic mobility in these stems, a similar relationship is not found in the *o*- and *ā*-stems. Most importantly, by relocating the mobility of vowel stems to the Indo-European proto-language, the problem is not solved, it has only been pushed back to a more remote period. Therefore, the hypothesis that the Balto-Slavic paradigmatic mobility in vowel stems is an archaism should be accepted only if no other plausible explanation is found.

Criticism of Kortlandt's hypothesis[130]

In this discussion I shall focus on the aspects of Kortlandt's theory that are directly relevant to the question of the development of paradigmatic mobility in Balto-Slavic. I shall ignore other problematic issues like the extraordinarily specific sound laws advanced by Kortlandt, e.g. the retraction from a final reduced vowel in Slavic mentioned in the preceding section, or the step-wise loss of laryngeals in Slavic. As my reasons to reject Kortlandt's theory on the origin of the Balto-Slavic accentual mobility are primarily connected with the principles underlying his theory, I shall not discuss the accentuation of specific word-forms.

Already when Saussure put forward the hypothesis that the accent was retracted from medial syllables in forms like acc. sg. **duktẽrin* > LI *dùkterį*, he acknowledged the controversial character of the retraction, cf. his often-quoted footnote saying that "[i]l est malheureusement difficile de dire le caractère exact qu'aurait cette loi, car il y a des obstacles à la transformer en loi phonétique pure et simple."[131] Pedersen, who accepted Saussure's formulation of the law, insisted on regarding it as a phonetic law, adding, however, that "c'est là une loi phonétique d'un type dont les 'néogrammairiens' de la période du renouvellement de la linguistique indo-européenne n'avaient certainement pas rêvé."[132]

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129. Cf. Maretić (1890: 40).
130. The following criticism of Kortlandt's views is, apart from a few minor corrections, identical to that found in my dissertation (2006). As a reaction to the criticism, Kortlandt has recently modified his views on the origin of the Balto-Slavic mobile accent paradigms. The Postscript of this book contains a discussion and criticism of Kortlandt's modified views.
131. Saussure (1896 [1922]: 533 fn. 1).
132. Pedersen (1933: 25); Hjelmslev (1932: 2) regarded the retraction as "une formule phonétique fort ancienne et commune au baltique et au slave"; Hamp

Kortlandt, explicitly maintaining that the retraction "cannot have been phonetic", adds that "several accent shifts in the history of Slavic are subject to conditions of this type."[133] As a matter of fact, changes of this kind constitute the backbone of Kortlandt's theory of Balto-Slavic accentuation.[134] The following prosodic developments proposed by Kortlandt are of this type:[135]

1 Pedersen's Law (Early Balto-Slavic): "the stress was retracted from inner syllables in accentually mobile paradigms".
2 Oxytonesis (Early Balto-Slavic): "the stress shifted from an inner syllable to the end of the word in paradigms with end-stressed forms".
3 Meillet's Law (Early Slavic): "on the analogy of the end-stressed forms, the laryngeals were eliminated from the barytone forms of paradigms with mobile stress".
4 Pedersen's Law II (Early Middle Slavic): "The stress was retracted from inner syllables in accentually mobile paradigms […] The stress was also retracted within the initial syllable of barytone forms in paradigms with mobile stress, yielding a falling tone."
5 Dolobko's Law (Late Middle Slavic): "Barytone forms of accentually mobile paradigms lost the stress to an enclitic particle".

The reference to this type of laws is an inheritance from Ebeling, whose chronological overview of the development of Slavic accentuation, as we have seen, was characterised by formalised analogical laws, e.g. the "Law of marginal oxytones: if in one paradigm *xx́* and *xx́x*, then *xx́x* > *xxx́*".[136] Formalising these developments and giving them the status of a "law" has the advantage of adding clarity to the exposition. The procedure may, however, give the impression that we are dealing with with actual sound laws, disguising the fact that the assumed processes are of analogical nature.

In historical linguistics we should not, in my opinion, operate with the kind of analogical "laws" that are crucial to Kortlandt's theory of the development of the Balto-Slavic accentual mobility. Analogical, i.e. morphological, change is not subject to the same regularities as phonetic laws. It repre-

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(1959: 44–45) refers to the law as a "simple phonemic change"; see also Jasanoff (2004a: 252 fn. 12); a phonetic accent retraction was rejected by Stang (1957 [1965]: 11–13, 176; 1966a: 132–135).

133. Kortlandt (1975: 9); cf. (Ebeling 1967: 579 fn. 17).
134. Cf. Klingenschmitt (1989: 1), presenting a list of "[l]autgesetzliche und GESETZMÄSSIGE ANALOGISCHE Verlagerungen des Iktus in der Entwicklung vom Urindogermanischen zum Urslavischen hin" (my emphasis).
135. Quoted from Kortlandt (1994 [2002]).
136. Ebeling (1967: 580), quoted from Kortlandt (1975: 1).

sents a fundamentally different type of linguistic change. While a phonetic law, at least ideally, affects all positions where the same phonetic conditions are found, irrespective of the morphological consequences the changes may have, an analogical change that takes place in a morphological system is MOTIVATED within that system. A typical example of a motivation would be the simplification of a complicated system.[137]

Evidently, in numerous cases the motivation is not immediately visible to the eyes of later researchers; I do not intend to say that the proposal of an analogical substitution of, for example, one desinence for another is unacceptable if a clear motivation cannot be found. But when changes like Pedersen's Law, the Oxytonesis or the Barytonesis, which are made responsible for radical restructurings of the Balto-Slavic accentuation system, result in systems of much greater complexity than the preceding ones, the least we may ask for is a convincing motivation. For instance, words like the one for 'daughter', which originally had simple columnar accentuation, as a result of Pedersen's Law supposedly acquired a significantly more complicated accentuation pattern than they had before.[138] The motivation given by Pedersen, viz. an exaggeration of the opposition gen. sg. *dukterès* vs. nom. pl. **duktères* > *dùkteres*,[139] is, in my opinion, not satisfactory.

Similar objections may be raised to all hypotheses according to which the accentual mobility was somehow transferred from the consonant stems (either polysyllabic stems like the word for 'daughter' or root nouns) to the

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137. Cf. Gustavsson (1969: 7): "The analogy invariably effects a simplification, tending to abolish oppositions between different patterns. This need not, however, in itself lead to a reduction in the number of patterns in the system – that is, in the language as a whole."

138. It should be noted that it requires a certain amount of good will to find the mobility presupposed by Pedersen's Law in the paradigm of 'daughter' (approximately nom. sg. **duk*ˈ*tē*, acc. **duk*ˈ*terin*, gen. **duk*ˈ*tres*), "where columnal stress on the syllable following the root was compatible with accentual mobility between the formative suffix and the desinence" (Kortlandt 1994 [2002]: 4) – especially in consideration of the fact that, at the same time, the paradigm of 'son' (approximately nom. sg. **suh*ˈ*nus*, acc. **suh*ˈ*nun*, gen. **suh*ˈ*neu̯s*, instr. **suh*ˈ*numi*) apparently was immobile enough not to be affected by Pedersen's Law.

139. "Here [i.e. in pre-LI nom. pl. **duktères*] the conception of the accent on the middle syllable was emphasized because of its opposition to [gen. sg.] *dukterès*, and this led to an exaggeration of the difference by which at first a part of the accent and finally the entire accent shifted to the first syllable." (Pedersen 1962: 300; cf. 1933: 25–26).

vowel stems. This includes the hypotheses of Maretić, Pedersen, Kuryłowicz, Ebeling and Rasmussen, who all asume that the Baltic and Slavic vowel stems have imitated the accentual mobility found in consonant stems.[140] In my opinion, it is unlikely that the first thing to disturb the originally regular accent paradigms of the vowel stems, with columnar accent on the same syllable counting from the beginning of the word, was an analogical import of the complicated accentual mobility of the consonant stems.[141] The mobile accent paradigms of Balto-Slavic resemble the result of a phonetic change which has taken place without regard to the consequences it had on the morphological level, cf. the typologically comparable parallel provided by Saussure's Law in Lithuanian.

Of less importance in principle, but by no means irrelevant, is the circumstance that the consonant stems constitute an unproductive group of words that are gradually disappearing in Baltic and Slavic, leaving only a few traces in the morphological systems of these languages. The small number and unproductive character of the consonant stems render it improbable that they should have influenced the large and productive group of vowel stems in such a profound manner as an imitation of the accent curves would imply.[142] It should be noted that analogical developments like the well-known expansion in some Slavic languages of the athematic prs. 1 sg. desinence CS **-mь*,[143] an example of a characteristic feature of an unproductive group spreading to a productive group, do not provide a parallel since in cases like this we are dealing with ONE particular desinence which comes in useful in the existing system. The imitation of the accent curves of the consonant stems by the vowel stems would be approximately as surprising as the substitution of, say, all desinences of the *ā*-stems with those of the consonant stems in Proto-Balto-Slavic.

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140. According to Carrasquer Vidal (2007), the *raison d'être* of the transfer of mobility from the consonant stems to the vowel stems was "to mimic in vowel-stem nouns and adjectives the prosodic distinction between nominative and accusative singular that existed in athematic nouns."
141. Cf. the parallel line of argument in Schwyzer's criticism of Kuryłowicz: "man müßte also annehmen, daß eine alte einfache Akzentuation *τιμᾰ́ *τιμᾰ́ς *τιμᾰ́ι τιμᾰ́ν* so zu der weniger einfachen *τιμᾰ́ τιμᾶς τιμᾶι τιμᾰ́ν* geworden sei. Das ist an sich wenig wahrscheinlich" (Schwyzer 1939 [1968]: 382).
142. Cf. Kiparsky (1973: 828); Johnson (1980: 496), on the accentuation of athematic and thematic verbs; cf. Vermeer (1984: 348); for the question of analogy and frequency see the cautious notes of Gustavsson (1969: 8–9).
143. The possible relevance of this development was pointed out to me by Jørn Ivar Qvonje (pers. comm.); see also Vermeer (1984: 348).

To sum up, since for reasons of principle I cannot accept the fundamental processes in Kortlandt's theory of the evolution of the Balto-Slavic mobile accent paradigms, first of all Pedersen's Law and the Oxytonesis, I see no alternative to rejecting Kortlandt's theory altogether. Since, moreover, I consider it very unlikely that the Balto-Slavic mobility originated in the consonant stems and was imitated by the vowel stems, I must also reject the various theories that take as their point of departure the mobility of the consonant stems, whether this mobility is assumed to have developed by Pedersen's Law or by similar analogical processes, or was inherited directly from the Indo-European proto-language.

Chapter 2
Indo-European

Two suprasegmental characteristics of the Indo-European proto-language are relevant to this examination of the development of the Balto-Slavic accentual mobility: the free accent and the structure of the final syllables. In this chapter a reconstruction of these two characteristics is undertaken on the basis of data from the following non-Balto-Slavic linguistic systems:

1 Indo-Iranian:
   a The Proto-Indo-European accent is directly reflected in the Vedic free accent; data from Iranian languages corroborate the evidence of Vedic.
   b The different structures of Proto-Indo-European final syllables are reflected in certain peculiarities of the Vedic and Avestan metres.
2 Greek:
   a The Proto-Indo-European accent is directly reflected in the Greek restricted accent.
   b The different structures of Proto-Indo-European final syllables are reflected in the Greek tonal distinctions in final syllables.
3 Germanic:
   a The Proto-Indo-European accent is indirectly reflected through the outcome of Verner's Law.
   b The different structures of Proto-Indo-European final syllables are possibly reflected through the outcome of the so-called "Germanic auslautgesetze".
4 Proto-Indo-European internal reconstruction:
   a At a pre-stage of Proto-Indo-European there existed a correlation between accent and ablaut grade; although this correlation seems to have been largely obliterated at the final stage of Proto-Indo-European, the ablaut pattern of a word-form may give a hint about its accentuation at an earlier stage.
   b The different structures of Proto-Indo-European final syllables are dependent on the phonological shape of the constituent morphemes, which can often be determined through an analysis of morphological alternations.

In the analyses and reconstructions of this chapter no reference is made to Baltic and Slavic evidence. Ch. 3 of the study contains an examination of the accentuation systems of these language branches.

1. Indo-Iranian

In this section we shall consider the evidence from two ancient Indo-Iranian languages, Vedic and Avestan, which belong to the Indian and Iranian branch respectively. Since the prosodic system of Vedic is described by ancient Indian grammarians and the accent is directly attested in the texts, we have a comprehensive knowledge of the Vedic prosodic system, which is the subject of § 1.1 below. In classical Sanskrit the free accent of the Vedas is replaced by a fixed accent similar to that of Latin. As opposed to the clear evidence of Vedic, the contribution of Avestan to the reconstruction of the Proto-Indo-Iranian accent is very modest. Data from modern East Iranian languages like Pashto, which seem to preserve traces of the Proto-Indo-Iranian accent, apparently confirm the Vedic evidence.[1]

Certain long vowels in the Ṛgvedic and Old Avestan metres apparently count as two vowels. Since these disyllabic scansions are often found where two consecutive vowels are reconstructed etymologically, the metrical irregularities may preserve a more archaic linguistic stage than the written texts. The combined evidence of Vedic and Avestan allows us to get a picture of the structure of Proto-Indo-Iranian final syllables, which was probably quite similar to that of the proto-language. The metrical evidence is examined in § 1.2 below.

A condensed overview of the Vedic nominal and verbal paradigmatic accentuation systems is presented in § 1.3 below in order to give an impression of the probably most conservative Indo-European accentuation system comprehensively attested.

1.1. Prosodic system

In Vedic most words are characterised by having one accented syllable, referred to as the *udātta* ‘raised’ in the traditional terminology and written

1. Mayrhofer (1989: 13); but cf. Lubotsky (1988: 16–17).

with an acute mark (<ˊ>) in the transcription;[2] unaccented syllables are referred to as *anudātta* 'not raised' and are left unmarked in the transcription. Some categories of words, viz. finite verbs in main clauses, vocatives not in sentence-initial position and certain pronouns and particles, do not have an accent; these words consist only of syllables with low tone. In words with an accent, the position of the accent is not predictable on the basis of the phonological shape of the word. Thus according to the definitions given in Ch. 1 § 3, Vedic is an accent language with free accent and unaccented word-forms,[3] typologically similar to Tokyo Japanese.

Phonetically, in the Ṛgveda the accented syllable was characterised by a relatively high tone, the following syllable by a rise and an immediate fall. The falling tone of the posttonic syllable, which is referred to as the *svarita*, was phonologically irrelevant at the time of the composition of the Ṛgveda. Due to the loss of syllabicity of high vowels followed by a vowel, in the language stage attested in the manuscripts this tone had acquired relevance and is referred to as the *independent svarita*, written as a grave mark (<ˋ>) in the transcription. For instance, a word which is written *vīryàm* in the manuscripts was still trisyllabic *vīríam* when the Vedas were composed, as can be inferred from the scansion of the verses in which it occurs. As the original syllabic status of words like this is easily recoverable, the independent *svarita* is ignored in this study, the only relevant accentual marking being the *udātta* or accent. The mora is not a relevant unit of reference in the description of the Vedic accent.

The value of the Iranian material for the reconstruction of the Proto-Indo-Iranian accent is scanty compared to that of Indian. Iranian seems to confirm the Vedic data, which may be assumed to reflect quite faithfully the Proto-Indo-Iranian state of affairs. The Avestan texts, though not providing any direct information on the prosodic system, allow us to get a glimpse of the Avestan or pre-Avestan prosody in the few cases where the accent has conditioned the segmental development. The most important cases where Avestan reveals the position of the accent are those where a pre-Avestan **r* was fol-

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2. For the Vedic accent see Whitney (1879 [1997]: 28–34); Wackernagel (1896: 281–297); Macdonell (1910: 76–82); Allen (1953: 87–93); Lubotsky (1988: 22–23).
3. I do not agree with Ternes (2001: 177) in regarding the disyllabic vowels revealed by the Vedic and Avestan metres as a possible indication of "tonale Erscheinungen"; as we shall see below, the "overlong" syllables are simply sequences of two vowels in hiatus.

lowed by a voiceless stop, i.e. the sequences **rp*, **rt*, **rk*.[4] If this sequence was preceded by accented **á* or **ə́*, the **r* was devoiced, yielding Avestan *ahrp*, *əhrp*, (**ahrt* >) *aṣ̌*, (**əhrt* >) *əṣ̌*, *ahrk*, *əhrk*; if the vowel preceding the **r* was unaccented, the **r* remained voiced. For instance, OAV, YAV *amәṣ̌a-* (< **amə́rta-*) 'immortal' corresponds to VED *amṛ́ta-*, while OAV, YAV *mərəta-* (< **mərtá-*) 'dead' corresponds to VED *mṛtá-*.

1.2. Final syllables: the Vedic and Avestan metres

Both the Vedic and Avestan languages are attested in the form of metrical texts. The metres seem to reveal language stages which pre-date the stages fixed in the written texts. Most importantly for our purposes, the Ṛgvedic and Old Avestan metres show a difference between two types of long vowels that are not distinguished in the written texts.[5] Some long vowels, though written like normal long vowels, count as two syllables in the metres. In final position the distinction between monosyllabic and disyllabic long vowels is connected with the distinction between acute and circumflex final syllables in Greek and Lithuanian, and perhaps with the Germanic auslautgesetze. This distinction is traditionally considered to be the reflex of a tonal distinction in the proto-language, but as we shall see in § 4.2 below, it may be more appropriately viewed as a distinction between Proto-Indo-Iranian plain long vowels and uncontracted sequences of two vowels.

Kuryłowicz showed that disyllabic long vowels often reflect sequences of two vowels separated by a laryngeal.[6] For instance, VED *vā́ta-* (and perhaps OAV *vāta-*) sometimes count as three syllables, pointing to a pre-form PII **u̯áhata-*, the regular outcome of PIE **h₂u̯éh₁n̥to-*.[7] In word-final position we find e.g. VED acc. sg. *pánthām*, OAV *paṇtąm* with metrically disyllabic final vowels, i.e. PII **pántaham* < PIE **pónt-oh₂-m̥*. Kuryłowicz maintained that vowels originating from non-laryngeal hiatus had contracted in prehistoric times, merging with long vowels of non-hiatal origin, e.g. *o*-stem

4. See Mayrhofer (1989: 12–13); Hoffmann and Forssman (1996: 92, 112–113); Schaffner (2001: 67–68).
5. See Wackernagel (1896: 49–52) with historical remarks on the problem; cf. Arnold (1897: 238–241; 1905 [1967]: 81–107).
6. Kuryłowicz (1927: 219; 1928: 204–206); cf. Monna (1978: 97–103); Hollifield (1980: 20–25 and passim); Mayrhofer (1981: 433); Beekes (1995: 144); Hoffmann and Forssman (1996: 78–79).
7. Cf. Mayrhofer (1987: 97 with fn. 43).

PII nom. pl. *-*ās* < PIE *-*o-es*, which seems to count as one syllable in the Vedic and Avestan metres.[8] This part of Kuryłowicz's theory was challenged by Hollifield who concluded that PIE **VhV* and **VV* sequences may both count as two syllables in the Indo-Iranian metres.[9] Since we find numerous instances of monosyllabic counting of sequences originally containing a laryngeal hiatus and even possible cases of disyllabic counting of originally monosyllabic vowels (e.g. VED acc. pl. *śukrā́m̐ś ca*[10] < PIE *-*ōns*), it is obvious that the process of merging of the two types of long vowels was advanced already at early stages of Vedic and Avestan. Due to the limited amount of material on which we may decide whether original **VV* behaves like **VhV* or like **V̄* in the Indo-Iranian metres, it seems most safe to leave the question unsolved.

While the circumstance that **VhV* and perhaps **VV* behave differently from **V̄* in the Indo-Iranian metres has great potential significance for the reconstruction of the Proto-Indo-European final syllables and, consequently, for this study, in practice the information provided by the metres is of limited use. First of all, as mentioned above we cannot be sure that an instance of mono- or disyllabic scansion of a given long vowel really does reflect its original syllabicity, cf. e.g. the different opinions on the occasional disyllabic scansions of the *o*-stem VED abl. sg. *-*āt*.[11] Besides, a number of desinences of interest to our purposes have been remade in Indo-Iranian, e.g. *ā*-stem VED gen. sg. *-*āyāḥ* for PIE *-*ah₂s* or *-*ah₂as*; or VED loc. sg. *-*āyām* for PIE *-*ah₂i* or **ah₂i̯*. The evidence of the Vedic and Avestan metres is conclusive only in the cases where we find a high number of instances pointing to disyllabic scansion, as in the VED gen. pl. -(*ān*)*ām*, OAV -*ąm*.

8. Kuryłowicz (1928: 205); cf. (1932: 201); Jasanoff (2004a: 248 with fn. 3).
9. Hollifield (1980: 25).
10. Lanman (1880: 346); cf. Oldenberg (1909: 422; 1912: 372); Lane (1963: 165).
11. Lanman (1880: 337): "For the Veda the existence of forms in -*aat* is extremely doubtful" vs. Arnold (1905 [1967]: 99), who considers "sufficiently probable" the evidence for original disyllabicity of VED -*āt*; cf. also Kuryłowicz (1928: 205–206): "Il est donc probable que l-*āt* disyllabique du Rigvéda est une innovation métrique de l'indien" vs. Debrunner and Wackernagel (1930: 95), who regard the Vedic disyllabic scansions as an indication of Proto-Indo-European circumflex tone, and Hollifield (1980: 24): "it seems reasonably clear that the *o*-stem [ablative singular] ending in Indo-Iranian was dissyllabic".

1.3. Paradigmatic accent

Nominal system

The nominal paradigmatic accentuation system of Vedic is relatively simple.[12] All vowel stems and most polysyllabic consonant stems have columnar accentuation; mobility is found almost exclusively in monosyllabic consonant stems. Of the types with columnar accent, the one that is relevant to our examination of the Balto-Slavic paradigmatic mobility is accented on the first syllable of the desinence, e.g. *o*-stem nom. sg. *devá̍ḥ*, acc. *devám*, gen. *devásya*, dat. *devā́ya* etc.; *ā*-stem nom. sg. *jihvā́*, acc. *jihvā́m*, gen.-abl. *jihvā́yāḥ*, dat. *jihvā́yai* etc.; *i*-stem nom. sg. *matíḥ*, acc. *matím*, gen.-abl. *matéḥ*, dat. *matáye* etc.; *u*-stem nom. sg. *sūnúḥ*, acc. *sūnúm*, gen. *sūnóḥ*, dat. *sūnáve* etc.; *r*-stem nom. sg. *duhitā́*, acc. *duhitáram*, gen.-abl. *duhitúḥ*, dat. *duhitré* etc. In these stems the only exception to the rule that all polysyllabic words have immobile accentuation is the genitive plural of desinentially accented *i*-, *u*-, *ī*- and *r*-stems, where the accent is on the second syllable of the desinence, i.e. *matīnā́m*, *sūnūnā́m*, *devīnā́m*, *duhitṝṇā́m*. The reason for the deviating accentuation of the genitive plural is probably to be found in the fact that the *-V̄n-* element of the desinence *-V̄nā́m* is a secondary extension, cf. OAV *dugᵊdrąm*, YAV *pasuuąm* (next to *poᵘruną̊m*); when the desinence was extended with an extra syllable, *-ā́m* remained accented.[13]

In some cases we find accentual doublets in *ti*-stems, e.g. *matí-* (Ṛgveda) vs. *máti-* (Śatapatha-Brāhmaṇa). Doublets like this have been taken as evidence of original paradigmatic mobility in *i*-stems.[14] As in the case of the Germanic Verner doublets (see § 3.3 below), however, the existence of accent doublets alone does not prove paradigmatic mobility. Besides, with very few exceptions[15] we do not find *ti*-stem doublets in the Ṛgveda, but only by comparing Ṛgvedic material with later texts. Since the accent doublets do not seem to belong to the same chronological layer, they are more likely to be the result of secondary changes in the distribution of *ti*-stems in Vedic than to reflect original paradigmatic mobility.

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12. See Nielsen (2004) for an overview.
13. Nielsen (2004: 385–387); cf. Debrunner and Wackernagel (1930: 20) with references.
14. Meillet (1903a [1973]: 317); Kuiper (1942 [1997]: 443); Debrunner (1954: 632–633).
15. Debrunner (1954: 632) lists *tṛpti-* and, semantically differentiated, *citti-*, *śakti-*; cf. Liebert (1949: 88).

Of importance to our purposes are the consonant stems *pánthā-* 'way' and *púmāṁs-* 'man'. Stang regarded the mobility of these words as a remnant of a mobility that was originally found in all nominal stem-classes.[16] The word *pánthā-* displays ablaut alternations in the root, e.g. nom. sg. *pánthāḥ*, acc. *pánthām*, gen.-abl. *patháḥ*, dat. *pathé*, instr. *pathā́*, loc. *pathí*; nom. pl. *pánthāḥ*, acc. *patháḥ*, gen. *pathā́m*, instr. *pathíbhiḥ*, loc. *pathíṣu*. The following forms of *púmāṁs-* are attested: nom. sg. *púmān*, acc. *púmāṁsam*, gen.-abl. *puṁsáḥ*; acc. pl. *puṁsáḥ*, loc. *puṁsú* (Atharvaveda). The mobile accentuation of *pánthā-* is supported by the ablaut grades of the root: root-accented forms like nom. sg. *pánthāḥ* show *o*-grade,[17] PIE **pónt-ōh₂-*, while desinentially accented forms like dat. sg. *pathé* show zero grade, PIE **pn̥t-h₂-´*. There is thus reason to trace this accentuation pattern back to Proto-Indo-European, albeit as a rare type. In *púmāṁs-*, on the other hand, the root-accented forms may be innovations based on the vocative (cf. GK *θυγάτηρ*, *μήτηρ*, see § 2.3 below).[18]

Among the polysyllabic consonant stems that display accentual mobility are neuter heteroclitics like nom.-acc. sg. *dádhi*, gen.-abl. *dadhnáḥ*, and nom.-acc. sg. *yákṛt*, gen.-abl. *yaknáḥ*. While the inflexion of these stems is certainly relictal, the paradigmatic mobility they display is not necessarily old[19] and in any case it is improbable that this class should have played any role in the development of the Balto-Slavic accentual mobility. The same applies to the mobility displayed by cardinal numerals like nom.-acc. *saptá* 'seven', gen. *saptānā́m*, instr. *saptábhiḥ*;[20] present participles of the type nom. sg. *tudán*, acc. *tudántam*, gen.-abl. *tudatáḥ*; perfect participles like nom. sg. *tasthivā́n*, instr. *tasthúṣā*; and a few other peripheral categories.

Old accentual mobility is indisputably found in monosyllabic consonant stems, e.g. nom. sg. *pā́t*, acc. *pā́dam*, gen.-abl. *padáḥ*. dat. *padé*, instr. *padā́*, loc. *padí*; nom.-acc. du. *pā́dā*; nom. pl. *pā́daḥ*, acc. *padáḥ*, gen. *padā́m*, dat.-abl. *padbhyáḥ*, instr. *padbhíḥ*, loc. *patsú*. In the accusative plural approximately one third of the monosyllabic consonant stems have desinential accentuation like *padáḥ*;[21] in most words, however, the accent is on the root-

16. Stang (1966a: 305).
17. Rasmussen (1987 [1999]: 216; 1999b: 487 with fn. 6); Beekes (1995: 181); original *e*-grade is considered by Schindler (1969: 154 fn. 62); Mayrhofer (1986: 136 fn. 159).
18. See Eichner (1974: 39–40 with fn. 42).
19. Cf. Eichner (1973: 69).
20. Cf. Debrunner and Wackernagel (1930: 351–352).
21. Whitney (1879 [1997]: 146).

syllable, e.g. *vā́caḥ* (beside *vācáḥ*), which is in accordance with the Greek evidence, e.g. *πόδας*, and probably represents the original state of affairs.[22] A few monosyllables, e.g. *nár-*, have columnar root-accentuation except in the genitive plural, *narā́m* or *nṛ́ṇā́m*. The high degree of similarity in the accentual mobility of Vedic and Greek monosyllabic consonant stems allows us to reconstruct the Proto-Indo-European accent curves of these stems in accordance with the curves attested in Vedic.

Verbal system

In Vedic, finite verbs are accented only in the beginning of a sentence or *pāda* and in subordinate clauses; in other positions they are unaccented. Moreover, in forms with an augment, the augment takes the accent. Thematic verbs have columnar accentuation. Root-accentuation is generally accompanied by full grade of the root, desinential accentuation by zero grade. In such stems there are no traces of paradigmatic mobility. In a typical desinentially accented present stem, the following forms are relevant to our purposes: 1 sg. *tudā́mi*, 2 sg *tudási*, 3 sg *tudáti*, 1 pl. *tudā́maḥ* (*-ā́masi*), 2 pl *tudátha*, 3 pl *tudánti*; opt. 2 sg. *tudéḥ*, 3 sg. *tudét*, 1 pl. *tudéma*, 2 pl. *tudéta*.

In athematic present stems we find paradigmatic accent mobility, e.g. 1 sg. *émi*, 2 sg. *éṣi*, 3 sg *éti*, 1 pl. *imáḥ* (*-ási*), 2 pl *ithá*(*na*), 3 pl. *yánti*. In these stems the accent falls on the root in the singular indicative active, while all other forms have desinential accentuation. Since this direct evidence is supported by ablaut gradations of the forms, the accent paradigm can be safely traced back to Proto-Indo-European.

Of the aorist formations that have survived in Balto-Slavic, the thematic aorist usually has zero grade of the root and columnar accentuation on the desinence in Vedic, e.g. 1 sg. *ruhám*, 3 sg. *vidát*.[23] As this formation seems to be rather recent in the Indo-European languages, the accentuation found in Vedic cannot with certainty be taken as the point of departure of the reconstruction of the prehistory of the Balto-Slavic thematic aorist. However, since the Slavic aorist forms also continue old imperfects (originally injunctives), we should note that the accentuation of Vedic present injunctive forms like 3 sg. *ruját* corresponds to that of the thematic aorist forms.

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22. Hirt (1929: 225); Kortlandt (2005a: 4); cf. Debrunner and Wackernagel (1930: 60–61) with references.
23. Macdonell (1910: 371–372).

The *s*-aorist indicative has lengthened grade in the active as against zero grade or (in roots ending in *ĭ* or *u*) full grade in the middle. The only attested accented sigmatic aorist form, inj. middle 1 sg. *vā́ṁsi*, points to root-accentuation in the sigmatic aorist.[24]

2. Greek

The tradition of marking the tone of the accented syllable in Greek texts probably started around 200 BC in Alexandria.[25] In the beginning the accentual marks were used sporadically and only served to avoid misunderstandings in special cases. Around AD 400 the so-called Byzantine system was introduced. This system, which was not carried through systematically until the ninth or tenth century, eventually developed into the system that is in current use in editions of Greek texts.

Most of our information on Greek prosody concerns the Attic dialect. The accentuation of the Homeric epics as handed down by tradition does not present any remarkable differences from the accentuation of Attic, but since we cannot be sure of the authenticity of the accentuation of Homeric forms that do not occur in Attic, we should not attach too much importance to these forms. Apart from Attic, we have information about the prosody of Aeolic and Doric. In Aeolic the accent was fixed on the mora which was as close to the beginning of the word as allowed by the Dreisilbengesetz (see § 2.1 below). While Doric seems to agree with Attic in applying the Dreisilbengesetz as a restriction of the accent, there may be disagreement between the two dialects as regards the *σωτῆρα* Law (see § 2.1 below).[26] Since our knowledge of the Doric prosodic system is rather incomplete, I shall not use material from this dialect as a source of information about the prosodic system of Proto-Greek.

The Greek prosodic system has been subject to more changes, primarily of phonological character, than that of Vedic. Nonetheless, it plays an impor-

24. Whitney (1879 [1997]: 318); Macdonell (1910: 99).
25. The introductory remarks in this section are based on Schwyzer (1939 [1968]: 373–376); Allen (1968 [1994]: 124–130).
26. Bally (1908: 13–15); Hirt (1929: 65); Thumb and Kieckers (1909 [1932]: 74–77); Schwyzer (1939 [1968]: 384); Hinge (2006: 122–130).

tant role as a source of information about the structure of final syllables in Proto-Indo-European and the accentuation system of the proto-language.[27]

2.1. Prosodic system

The Byzantine notational system comprises three accentual marks: the ACUTE (*ὀξύς*, <ʹ>), which indicates high pitch on the second mora of a long accented syllable (rising tone) or on the only mora of a short accented syllable;[28] the CIRCUMFLEX (*δίτονος*, <῀>), which indicates high pitch on the first mora of a long accented syllable (rising-falling tone); and the GRAVE (*βαρύς*, <ˋ>), which substitutes the acute in word-final position before a following accented word and probably denotes a lowering of the pitch compared to the acute. Since the substitution of the grave for the acute is automatic and only takes place on sentence level, the precise nature of the grave is irrelevant to our purposes and we may concentrate on the acute and the circumflex.

As the distinction between the acute and circumflex tones does not exist in short syllables, which are always acute if accented, the following remarks apply to long syllables only. In final syllables, including the only syllable of monosyllables, the distinction is phonologically relevant, e.g. acc. pl. *ϑεᾰ́ς* vs. gen. sg. *ϑεᾶς*; or nom. sg. *φώς* 'man' vs. nom.-acc. sg. *φῶς* 'light'. In the penultimate syllable the tonal distinction has phonological relevance only in words ending in *-οι* or *-αι*, e.g. aor. opt. 3 sg. *εἴπαι* vs. aor. inf. *εἶπαι*, a problem to which we shall return below in § 2.2. Otherwise the penultimate is acute if followed by a long syllable and circumflex if followed by a short syllable, e.g. gen. sg. *δώρου* vs. nom.-acc. sg. *δῶρον*. If the antepenultimate is accented, it has acute tone.

The accent may fall on one of the three last syllables except that the antepenultimate may be accented only when the last syllable is short, e.g. nom. sg. *ἄνϑρωπος* vs. gen. sg. *ἀνϑρώπου*. Apart from these restrictions, the position of the accent is unpredictable from the phonological shape of the word, e.g. *τρόχος* 'running' vs. *τροχός* 'wheel'. Only one syllable per word is accented. According to the definitions given in Ch. 1 § 3, Greek is an accent language

27. I do not agree with the Greek part of the statement that "An exhaustive comparative grammar of G[reek] and L[atin] accent could be stated in sixteen words: THERE IS LITTLE OF THE PIE SYSTEM IN GREEK, AND NO TRACE OF IT IN LATIN." (Sihler (1995: 234), emphasis as in original).
28. See Ch. 1 § 3 for the definitions of long syllables, short syllables and diphthongs in Greek.

with restricted accent.[29] As we have seen above, the mora is a useful unit of reference in describing Greek prosody.

The rules stating that the quantity of the last syllable of the word determines both the possibility of an accented antepenultimate and the tone of the penultimate are consequences of the so-called "Dreisilbengesetz", according to which, in Jakobson's formulation, "the span between the accented and the final mora cannot exceed one syllable."[30] This restriction, while coming close to being synchronically operative, has ceased to work at a stage of Greek preceding the one attested in the texts. Violations of the law have arisen as the result of phonetic processes, e.g. gen. sg. *πόλεως* by quantitative metathesis from *πόληος*.[31]

The Dreisilbengesetz, which excludes a sequence of a penultimate circumflex syllable and a final long syllable, is complemented by another prosodic restriction of Greek, the *σωτῆρα* Law,[32] which operates synchronically. According to this law, the acute tone of a penultimate long syllable becomes circumflex if the final syllable is short, e.g. nom. pl. *ἑστῶτες* (nom. sg. *ἑστώς*) from *ἑσταότες*, attested in Homer.

2.2. Final syllables: the Greek tones

In the discussion of a tonal distinction in final syllables in Proto-Indo-European, Greek takes a key position. In contrast to other data relevant to the

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29. Since the occurrence of several consecutive accented syllables is possible in other languages where the accent primarily involves pitch, e.g. Vedic, I do not agree with the judgement of Risch (1975: 473 fn. 5): "Il est très peu probable que dans une série d'enclitiques il y ait vraiment eu plusieurs syllabes consécutives accentuées, p. ex. *εἴ πώς τίς ποί ποιθεν ἔλθοι*"; cf., on Vedic, Kortlandt (1986a: 156–157).
30. Jakobson (1971b: 263); see also Bally (1945: 18–21) ("loi de limitation"); Rix (1976: 42); Allen (1973: 236–239), who applies the term "contonation" in a simplified reformulation.
31. Quantitative metathesis is the Attic-Ionic development of *ηᾰ*, *ηο* to *εᾱ*, *εω*; see e.g. Rix (1976: 57).
32. Also known as "*ᾶμα*-Gesetz", "Properispomenierungsgesetz", "règle de l'intonation de la pénultième", "loi de la pénultième longue accentuée"; see Vendryes (1904: 56–57); Hirt (1929: 51–52), who extends the domain of the law; Schwyzer (1939 [1968]: 377) with references; Bally (1945: 22–23); Lejeune (1972: 296–297); Allen (1973: 237–238): "usually termed, though inappropriately, the 'final trochee' rule"; Meier-Brügger (1992: 286–287).

reconstruction of Proto-Indo-European final syllables – Indo-Iranian metrical evidence, the Germanic auslautgesetze and Proto-Indo-European internal reconstruction – Greek displays a direct prosodic distinction in this position. In order to account for the role of the structure of Proto-Indo-European final syllables in the development of the Balto-Slavic accentuation system, the prehistory of the Greek distinctive tones has to be established. As we have seen above, from a synchronic point of view the Greek tones are distinctive in the following positions:

1 In final syllables of polysyllabic words, e.g. nom. sg. *φυγή* vs. dat. sg. *φυγῇ*.
2 In the only syllable of monosyllabic words, e.g. nom. sg. *πούς* vs. nom. sg. *βοῦς*.
3 In the penultimate syllable of words ending in *-οι* or *-αι*, e.g. nom. pl. *οἶκοι* vs. adv. (from loc. sg.) *οἴκοι*.

Historical remarks

First I shall briefly sketch three theories on the origin of the Greek tones, namely the traditional theory, Kuryłowicz's theory and a laryngealistic approach. For supplementary references and discussion of the various approaches see § 4.2 below.

The traditional view[33] simply assumes that the Greek tonal distinction in (a), (b) and (c) in most cases reflects a similar tonal distinction of the proto-language, i.e. a distinction in final syllables between Proto-Indo-European "acute" and "circumflex" syllables. The tonal distinctions are also reflected in Lithuanian final syllables and in the Indo-Iranian metre. Thus, the accented syllables of GK *φυγή* and *πούς* had acute tone in Proto-Indo-European, while *φυγῇ* and acc. sg. *βῶν* (Hom., Doric) had circumflex tone. In the pre-form of *οἶκοι* the desinence was acute (cf. accented *ἀγροί*) and therefore counted as short, while in *οἴκοι* it was circumflex (cf. accented *Ἰσθμοῖ*) and counted as long.[34]

According to Kuryłowicz, on the other hand, the Greek tonal oppositions have nothing to do with a distinction between Proto-Indo-European "acute" and "circumflex" final syllables or, in laryngealistic terms, a difference between long and hiatal structures in the proto-language. Instead, the distinc-

33. Represented e.g. by Brugmann (1886 [1897], 2: 947–949); Hirt (1929: 199–208).
34. Cf. Hirt (1929: 38).

tive tones have arisen recently[35] in the history of Greek due to contractions where, after the loss of intervocalic **h* (< **s*), **i̯*, **u̯*, *V́V* yielded *Ṽ*, e.g. nom.-acc. sg. *φῶς* < Hom. *φάος*, gen. sg. *εὐγενοῦς* < **-geˈnehos*. The tone of this new *Ṽ* contrasted with the acute tone of *V́*, reflecting originally accented long vowels and earlier contractions of *VV́*. Having thus arisen phonetically as a result of contractions, the circumflex later spread morphologically to originally uncontracted vowels. For instance, in the dative singular the circumflex tone was introduced in *ἀγρῷ*, *φυγῇ* because of the circumflex tone of *εὐγενεῖ* (from **-geˈnehi*), while the acute tone was retained in nom. sg. *φυγή* because of the acute tone of *εὐγενής*. Alternations found in the consonant stems, e.g. nom. sg. *δοτήρ* with accent on the final mora vs. dat. sg. *δοτῆρι* with accent on the penultimate mora (medial *-V̄-* being monomoraic), contributed to the introduction of the circumflex in the corresponding forms of other stem-classes such as *ἀγρῷ*, *φυγῇ*.

The opposition between loc. sg. *οἴκοι* and nom. pl. *οἶκοι* is, according to Kuryłowicz, dependent on the opposition between accented *Ἰσθμοῖ* and *ἀγροί*, where again the circumflex tone of the locative in *-oῖ* has been introduced analogically from the corresponding form of the consonant stems, the locative still being a paradigmatic case when the transfer took place. In monosyllabic words like *βοῦς* and *μῦς*, the circumflex was introduced as a result of a reinterpretation of the words as *u*-stems accented on the first mora, i.e. *βό-υ-ς*, *μύ-υ-ς*.

General rule

The analysis of the Greek tones endorsed here is a laryngealistic elaboration of the traditional theory. The assumed Proto-Indo-European tonal distinction is redefined in terms of a distinction between long and hiatal final structures (in the sense of the words given in § 4.2 below). Proto-Indo-European long vowels, whether of non-laryngeal origin, e.g. nom. sg. **dəˌtḗr*, or of laryngeal origin, e.g. nom. sg. **bʰugáh₂*, yield a Greek acute tone in the final

35. Kuryłowicz found it "impossible not only to trace that system back to the Indo-European period, but even to any period much older than the oldest Greek documents (Homer)" (1932: 202; cf. 1934: 28); note that in these early works Kuryłowicz claimed that prehistoric contractions of PIE **V(h)V* to GK *V̄* do not yield a phonetic circumflex tone, while in (1968: 82) he maintained that contractions such as those of **VhV* to *V̄* "scheinen den Ausgangspunkt für die Intonationen gebildet zu haben"; cf. the criticism of Kuryłowicz's view on the Greek tones in Schwyzer (1939 [1968]: 382); Tronskij (1962: 108); Kiparsky (1973: 800–802).

syllable of polysyllabic words: *δοτήρ*, *φυγή* (for monosyllables see below in this subsection). The final syllable of *βασιλεύς* from PGK **-eus*, whatever its ultimate origin, indicates that final diphthongs in polysyllabic words behave prosodically like long vowels, having an acute tone. Proto-Indo-European hiatal structures on the other hand, again regardless of whether originally non-laryngeal, e.g. PIE dat. sg. **deiu̯óei̯*, or laryngeal, e.g. PIE dat. sg. **bʰugáh₂ai̯*, are reflected with a circumflex tone in Greek: *ἀγρῷ*, *φυγῇ*. The accent was probably preserved on the first mora when the contraction took place. Similarly, in the reflexes of later contractions following the loss of intervocalic (**s* >) **h*, **i̯*, **u̯*, the accent remained on the original mora, e.g. *εὐγενοῦς* < **-geˈnehos*. Additional acute tones in the final syllable of polysyllabic words arose through compensatory lengthening accompanying the loss of **n* before final **-s*, e.g. PGK acc. pl. **aˈgrons* > *ἀγρούς*.

Final -οι and -αι

Greek diphthongs, i.e. tautosyllabic *VU̯* sequences, generally have the same prosodic value as long vowels, counting as two moras with respect to the Dreisilbengesetz and the *σωτῆρα* Law.[36] In non-final position this is seen in examples such as *ταῦρος* and *κοῖλος*, where the circumflex tone is possible only because the first syllable is long (as in *δῆμος* with a long monophthong), as opposed to for example *πόντος* with acute tone showing a short first syllable. The reflexes of most Proto-Greek diphthongs in final syllables of polysyllabic words, viz. **ei*, **ou* (> Attic <ει> [ē̯], <ου> [ō̯]), **au*, **eu*, are invariably equivalent to long vowels. This may be connected with the fact that in the cases where these diphthongs occur in final position, they are of post-Proto-Indo-European origin.

Only the diphthongs *-οι* and *-αι* in absolute final position sometimes count as short vowels, as can be seen from a comparison of the tone of the diphthong when accented and its prosodic value according to the Dreisilbengesetz and the *σωτῆρα* Law. The most important forms are:[37]

36. Oliver B. Simkin has been very helpful in providing references and discussing the various approaches to the prosodic problems regarding final *-οι -αι* in Greek.
37. Cf. Kühner and Blass (1834 [1890]: 320–321); Schwyzer (1939 [1968]: 376); Hinge (2006: 126–128). A few forms like voc. sg. *Σαπφοῖ*, adv. *πρόπαλαι* are not taken into consideration.

Table 3. Prosodic value of Greek final diphthongs

	FORM	TONE	DREISILB.	*σωτῆρα*
1	*o*-stem nom. pl. (*ἀγροί*, *φερόμενοι*, *οἶκοι*)	acute	short	short
	ā-stem nom. pl. (*φυγαί*, *φερόμεναι*, *χῶραι*)	acute	short	short
	prs. middle 1 sg. (*παιδεύομαι*, *φιλοῦμαι*)	–	short	short
	prs. middle 3 sg. (*παιδεύεται*, *φιλεῖται*)	–	short	short
	prs. middle 3 pl. (*παιδεύονται*, *φιλοῦνται*)	–	short	short
	aor. ipv. middle 2 sg. (*παίδευσαι*, *λῦσαι*)	–	short	short
	prs. inf. act. athematic (*εἶναι*)	–	–	short
	aor. inf. act. (*παιδεῦσαι*)	–	–	short
	prs. inf. middle (*παιδεύεσθαι*, *φιλεῖσθαι*)	–	short	short
2	*o*-stem loc. sg. (*οἴκοι*, *Ἰσθμοῖ*)	circfl.	–	long
	prs. opt. act. 3 sg. (*παιδεύοι*)	–	long	long
	aor. opt. act. 3 sg. (*παιδεύσαι*)	–	long	long

The diphthongs in (1) are prosodically short, functioning in the same way as e.g. final *-ον* or *-ος*, while those in (2) are long, functioning like final *-η* or *-ου*.

The apparent double value of final *-οι* and *-αι* was easily explainable within the traditional framework, where the different tones of (1) and (2) were thought to reflect a similar tonal difference in Proto-Indo-European, shown directly in nom. pl. *ἀγροί* vs. loc. sg. *Ἰσθμοῖ* and indirectly (by the Dreisilbengesetz) in nom. pl. *φερόμενοι* vs. prs. opt. 3 sg. *παιδεύοι* and (by the *σωτῆρα* Law) in nom. pl. *οἶκοι* vs. loc. sg. *οἴκοι*. In the two latter pairs, the tonal distinction in final syllables does not surface but functions as if it were a quantitative difference like that of the final syllables of prs. ipv. 2 sg. *παίδευε*, *φεῦγε* vs. prs. 1 sg. *παιδεύω*, *φεύγω*. Note that in this respect the tonal distinction of *-οί -αί* vs. *-οῖ -αῖ* is different from that of long final monophthongs, where the vowel is invariably long with respect to the *σωτῆρα* Law and the Dreisilbengesetz, regardless of its tone when accented; cf. the identical behaviour as regards these laws of the acute of nom.-acc. du. *ἀγρώ*, *δώρω*, *ἀνθρώπω* and the circumflex of gen. pl. *ἀγρῶν*, *δώρων*, *ἀνθρώπων*. There was hardly any quantitative difference between the final syllables of *οἶκοι* and *οἴκοι* at the time of the attestation of a tonal distinction in the first syllable of the two forms.[38]

To a laryngealistic view that does not accept syllabic tones in the protolanguage, the different values of final diphthongs constitute a problem since the reinterpretation of tones in terms of syllabic structures is not so eas-

38. Meier-Brügger (1992: 285).

ily applicable to short diphthongs. From an internal Proto-Indo-European point of view, the adj. *o*-stem nom. pl. **-oi̯* is difficult to analyse further. The *o*-stem loc. sg. consists of the thematic vowel **-o-* plus the locative ending **-i*, which would, according to the phonotactical rules of the proto-language, be realised as PIE **-oi̯*. It has been claimed that the **-i* of the locative morpheme "nie unsilbisch wird";[39] but the arguments in favour of such a claim are, in my opinion, not strong enough to allow us to discard the phonotactical rules of the proto-language, especially since there are no traces of a disyllabic desinence in Indo-Iranian.

Given that at the outset we expect a final diphthong to count as long if the following word begins with a consonant and as short if the following word begins with a vowel, i.e. PGK **aga'tʰoi pa'teres* 'good fathers' vs. **aga'tʰoj a'neres* 'good men', we do not *a priori* have any reasons to regard the long or short counting as more probable than the other. The different values of the diphthongs may represent different sandhi alternants. In Attic-Ionic there apparently was a trend to generalise the prevocalic (short) alternants.[40] This would be in harmony with the fact that the desinences that count as short are more heterogeneous than those that count as long, the latter consisting only of optative forms and the locative singular of the *o*-stems. Moreover, it is worth considering if the original final **-t* of the optative might have determined the accent and tone of the word-form, i.e. *παιδεύοι* < pre-GK **-oit* < PIE **-oi̯h₁t*, which would discard these forms as evidence.[41] Even if this is not the case, it would not be difficult to imagine a generalisation of the accent and tone of the other forms of the paradigm, i.e. 1 sg. *παιδεύοιμι*, 2 sg *παιδεύοις*, 3 sg **παίδευοι → παιδεύοι*.[42] As for the prosody of the locative singular, it has been maintained that the form was influenced by the dative singular, i.e. loc. sg. **Ἰσθμοί*, **οἶκοι → Ἰσθμοῖ*, *οἴκοι* under influence of dat. sg. *Ἰσθμῷ*, *οἴκῳ*.[43] This view is quite probable in the light of the mutual influence between these forms in the prehistory of Greek. It thus seems likely that at least the Attic-Ionic dialect of Greek generalised the prevocalic sandhi

39. Mayrhofer (1986: 161 with fn. 267, mentioning Schindler as the originator of the view; 131 with fn. 139); similarly Meier-Brügger (1992: 286 with fn. 17); Jasanoff (2004a: 253 fn. 15).
40. Nagy (1970: 137–138); see also (Rix 1976: 47–48).
41. Rasmussen (1989a: 224); cf., somewhat differently, Rix (1976: 48).
42. Risch (1975: 473); Meier-Brügger (1992: 285–286), considering also the possible influence of final **-t*.
43. Risch (1975: 473).

alternants PGK *-*oj -aj* unless there was a specific reason to generalise the preconsonantal alternants PGK *-*oi -ai*.

Monosyllabic words

Greek monosyllabic words containing a long vowel or a diphthong may have either acute or circumflex tone. The tones are phonologically relevant, as illustrated by minimal pairs such as *φώς* 'man' vs. *φῶς* 'light', or *πούς* 'foot' vs. *βοῦς* 'ox'. At an earlier occasion I have argued that the tones have become distinctive in the internal post-Proto-Indo-European prehistory of Greek.[44] I shall briefly mention the most important conclusions.

The basic rule governing the tones of monosyllabic words implies that words ending in two consonants in Proto-Greek[45] have acute tone, while words ending in less than two consonants have circumflex tone. This explains nom. sg. *κλώψ*, nom. sg. *φώς* 'man' < PGK **ˈklōps*, **ˈpʰōts* vs. nom. sg. *μῦς*, acc. *μῦν*, nom.-acc. sg. *σκῶρ* < PGK **ˈmūs*, **ˈmūn*, **ˈskōr*. The original distribution was blurred by the loss of **t* before final **-s*, as in *φώς* < PGK **ˈpʰōts*; by the development of an acute tone through the compensatory lengthening caused by the loss of **n* before **-s*, as in nom. sg. *ῥί̋ς* < PGK **ˈhrins*; and by historical contractions such as in Attic nom. sg. *δᾴς*, cf. Hom. *δαΐς*. These later developments contributed to the presence of an acute tone in words synchronically ending in only one consonant and, accordingly, to the increasing functional load of the tonal opposition in monosyllabic words.

Although the material is less unambiguous when it comes to monosyllabic words containing a diphthong, it seems that the diphthong behaved like a long vowel. The circumflex tone of nom. sg. *βοῦς*, acc. *βοῦν* (replacing more original Homeric and Doric *βῶν*) is thus phonetically regular since the words ended in one consonant; on the other hand, the acute tone of nom. sg. *Ζεύς* should be regarded as secondary, having probably been introduced from polysyllabic words of the *βασιλεύς* type.

Conclusion

To sum up, the rise of distinctive tones in Greek can be ascribed to a post-Proto-Indo-European period. The default tone on long final syllables is the acute, while contracted vowels have circumflex tone. The rules governing the

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44. Olander (2007a).
45. "Proto-Greek" refers to a language stage where final **-ts* has not yet been simplified to **-s*.

prosodic development of monosyllabic word-forms are identical to the rules for the last syllable of polysyllabic words with the addition that monosyllabic words ending in less than two consonants in Proto-Greek appear with circumflex tone in Attic-Ionic.

2.3. Paradigmatic accent

Despite the restrictions limiting its position in the word, the Greek accent has an important function in the nominal system. In the verbal system the introduction of accent on the leftmost possible mora in finite verbs has eliminated the paradigmatic accentuation. The effects of the Dreisilbengesetz, though evident in both the nominal and the verbal system, did not have any important systemic consequences for the paradigmatic accent.

Nominal system

If the effects of the Dreisilbengesetz are discounted, the accentuation of Greek nominal vowel stems is columnar throughout the declension of a word. We may distinguish between two accentuation types, a non-desinentially and a desinentially accented one. The *o*- and *ā*-stems provide numerous examples of both accentuation types, although in neuter *o*-stems there is a preponderance of the former.[46] All *i*-stems and most non-adjectival *u*-stems have non-desinential accentuation, whereas adjectival *u*-stems usually have desinential accentuation.[47] From an etymological point of view, the Balto-Slavic mobile words, which are the main concern of this study, generally correspond to Greek words with desinential accentuation. Since the prosodic characteristics of accented final syllables in Greek are important for the reconstruction of the structure of Proto-Indo-European final syllables, an overview of the desinentially accented vowel stems is useful:

Table 4. Desinentially accented vowel stems in Greek

	o-stem	*ā*-stem	*u*-stem
		SINGULAR	
nom.	*ἀγρός* / *ζυγόν*	*φυγή*	*ἡδύς* / *ἡδύ*
acc.	*ἀγρόν* / *ζυγόν*	*φυγήν*	*ἡδύν* / *ἡδύ*
gen.	*ἀγροῦ*	*φυγῆς*	*ἡδέος*
dat.	*ἀγρῷ*	*φυγῇ*	*ἡδεῖ*

46. Lubotsky (1988: 125–126).
47. Lubotsky (1988: 121–124).

		DUAL	
nom.-acc.	*ἀγρώ* / *ζυγώ*	(*Ἀτρεΐδᾱ* Hom.)	*ἡδέε*
		PLURAL	
nom.	*ἀγροί* / *ζυγά*	*φυγαί*	*ἡδεῖς*
acc.	*ἀγρούς* / *ζυγά*	*φυγᾱ́ς*	*ἡδεῖς*
gen.	*ἀγρῶν*	*ϑεᾱ́ων* Hom.	*ἡδέων*
dat.	*ἀγροῖς*	*φυγαῖς*	*ἡδέσι*

The disyllabic desinences of the *u*-stems, e.g. gen. sg. *ἡδέος*, together with the circumflex tone of contracted desinences, e.g. dat. sg. *ἀγρῷ*, *φυγῇ*, indicate that the accent originally was on the first syllable of the desinence, i.e. pre-Greek **-éu̯os*, **-óei̯*, **-áai̯* etc. For the traces of mobility in neuter *o*-stems see § 4.3 below.

In a few *ī*-stems (declined as *ā*-stems in Greek except for the short vowels of nom. sg. *-α*, acc. *-αν*), an alternation is found between root-accentuation in the nominative and accusative singular vs. desinential accentuation in the remaining forms, e.g. nom. sg. *ἄγυια* vs. gen. *ἀγυιᾶς*. This accent alternation, which is reported as being Ionic,[48] also characterises the similar formations *ὄργυια*, *ἅρπυια* and a few others; the feminine numeral *μία* 'one', gen. sg. *μιᾶς*, which is usually mentioned in this connection, is probably not relevant.[49] The *ἄγυια* type is important because it may be taken as an indication that *ī*-stems could be accentually mobile in Proto-Indo-European,[50] which would constitute an argument in favour of the hypothesis that mobility was found even in vowel stems in the proto-language. Another indication that the mobility of this type is old is constituted by the ablaut alternations of the suffix accompanying the accent alternations, i.e. PIE nom. sg. **ˊ-ih₂* vs. gen. sg. **-i̯áh₂-s*. It should be noted, however, that the paradigmatic mobility of *ī*-stems is rare in Greek and has left no accentual traces in Vedic. Furthermore, the accentuation was regularised early in the history of Greek so that in late Attic we find desinential accentuation in the nominative singular.[51] Thus in the only language which seems to attest directly accentual mobility in a

48. See Wheeler (1885: 111, 115); Bally (1945: 37); but cf. Vendryes (1904: 206–207); according to Chantraine (1948: 192 fn. 1), this accent alternation "n'est pas propre au dialecte homérique".
49. A laryngealistic reconstruction PIE nom. sg. **sm-íh₂*, gen. sg. **sm̥-i̯áh₂-s* would presumably yield the attested accentuation.
50. Meillet (1914c: 77); Schwyzer (1939 [1968]: 381); Stang (1957 [1965]: 175); Rasmussen (1979: 20); Kuryłowicz's internal Greek explanation of this mobility (1952 [1958]: 119–120) is not convincing.
51. Wheeler (1885: 111).

vowel stem, the tendency goes towards immobilisation.

In the consonant stems, like in the vowel stems, the type with columnar non-desinential accentuation, e.g. nom. sg. *ῥήτωρ*, acc. *ῥήτορα*, gen. *ῥήτορος* etc., is uninteresting from our point of view. The desinentially accented polysyllables and the monosyllables have the following paradigms:

Table 5. Desinentially accented consonant stems in Greek

	POLYSYLLABIC	POLYS./MONOS.	MONOSYLLABIC
		SINGULAR	
nom.	*δοτήρ*	*πατήρ*	*πούς*
acc.	*δοτῆρα*	*πατέρα*	*πόδα*
gen.	*δοτῆρος*	*πατρός*	*ποδός*
dat.	*δοτῆρι*	*πατρί*	*ποδί*
		DUAL	
nom.-acc.	*δοτῆρε*	*πατέρε*	*πόδε*
		PLURAL	
nom.	*δοτῆρες*	*πατέρες*	*πόδες*
acc.	*δοτῆρας*	*πατέρας*	*πόδας*
gen.	*δοτήρων*	*πατρῶν*	*ποδῶν*
dat.	*δοτῆρσι*	*πατράσι*	*ποσί*

Polysyllabic consonant stems like *δοτήρ* have columnar accentuation. The same is the case in words with an alternation between a monosyllabic and a polysyllabic stem, e.g. *πατέρ-*, *πατρ-΄*, where the accent falls on the second syllable of the stem in all forms regardless of the shape of the suffix.[52] An exception to the rules of accentuation of polysyllabic consonant stems is constituted only by the nominative singulars *θυγάτηρ* (acc. *θυγατέρα*, gen. *θυγατρός* etc.) and *μήτηρ* (acc. *μητέρα*, gen. *μητρός* etc.). Although the accentuation of *θυγάτηρ* (presumably from PGK **ǀtʰugatēr* by the Dreisilbengesetz) is sometimes considered original,[53] the corresponding Vedic form *duhitā́* suggests that it is secondary. The *communis opinio* seems to regard it as a result of the influence of the vocative *θύγατερ*;[54] similarly in the case of

52. Cf. Stang (1966a: 305): "Das letztgenannte Wort [i.e. VED *pitár-*, GK *πατήρ*] ist, isoliert betrachtet, NICHT mobil, da der Ton immer auf der letzten Silbe ruht." (emphasis as in original; "letzten" should be substituted by "zweiten").
53. Meillet (1914c: 75); Stang (1957 [1965]: 175; 1966a: 134); Kortlandt (1978b: 275 fn. 5; 1994 [2002]: 3).
54. Brugmann (1886 [1897], 2: 964); Torbiörnsson (1924b: 15 fn. 3); Schwyzer (1939 [1968]: 381); Rasmussen (1992b [1999]: 469); an original accentuation **θυγατήρ* is also assumed e.g. by Wheeler (1885: 16); Hirt (1929: 231); Bally

μήτηρ, voc. *μῆτερ*, cf. VED *mātā́* and PGE **mōdēr* from pre-PGE **mātḗr*. If we accept that *θυγάτηρ*, *μήτηρ* have replaced earlier **tʰugaˈtēr*, **māˈtēr*, these two words originally also had columnar accentuation. We may thus conclude that at a pre-stage of Greek all polysyllabic consonant stems had columnar accentuation.

Only in words with an invariably monosyllabic stem (not counting the nominative singular, which is disyllabic in cases like *κύων* (acc. sg. *κύνα*, gen. sg. *κυνός*) and *ἀρην*[55] (acc. sg. *ἄρνα*, gen. sg. *ἀρνός*)) do we find paradigmatic mobility in Greek, e.g. acc. sg. *πόδα* vs. gen. sg. *ποδός*. The accusative singular and the nominative and accusative dual and plural are accented on the initial syllable, while the genitive and dative of all numbers have desinential accentuation. This pattern is matched by the accentuation of monosyllabic words in Vedic and may be safely regarded as a Proto-Indo-European inheritance.

Discounting the effects of the Dreisilbengesetz and regarding the accentuation of *θυγάτηρ* and *μήτηρ* as secondary, we may conclude that Greek nominal paradigmatic mobility was limited to monosyllabic stems and a few *ī*-stems like *ἄγυια*.[56]

Verbal system

Greek finite verbs always carry the accent on the leftmost possible mora within the limitations of the Dreisilbengesetz, e.g. impf. 1 sg. *ἔφερον*, 1 pl. *ἐφέρομεν*, 3 du. *ἐφερέτην*.[57] In the proto-language, finite verbs were accented in certain syntactic constructions, unaccented in others; see § 4.3 below. The regularity of the accentuation of Greek finite verbs is a consequence of the prehistoric generalisation of the unaccented variants.[58] Because of this gen-

(1945: 35); Kuryłowicz (1952 [1958]: 122); Lubotsky (1988: 111); Snoj (2004: 540).

55. The nominative singular of *ἀρην* is attested only in inscriptions.
56. Cf. Rix (1976: 43).
57. For the apparent exceptions to this rule, viz. prs. 1 sg. *εἰμί*, *φημί* and a few 2 person aorist imperatives, see Wackernagel (1877 [1955]); Vendryes (1904: 115–118, 125–127); Kim (2002: 79) with references.
58. Wackernagel (1877 [1955]); Bloomfield (1883: 27); Hirt (1895: 170–171; 1929: 294–295); Vendryes (1904: 111–113); Bally (1945: 101–102); Risch (1975: 475–476); an interplay between originally accented and unaccented forms in the development of Greek verbal accentuation is assumed by Brugmann (1886 [1897], 2: 965–967); Meillet (1900b: 313–315).

eralisation, the accentuation of Greek finite verbs does not contribute to our knowledge of the Proto-Indo-European verbal accentuation system.

While the finite verbal forms of Greek are not very informative about the accentuation of the Proto-Indo-European verbal system, because of their nominal nature the infinite forms have preserved more of the original system, namely the different accentuation of various stems.[59] The accentuation of prs. ptc. *φέρων*, prs. inf. *φέρειν* corresponds to VED prs. ptc. *bháran*, prs. 3 sg. *bhárati*; and the accentuation of aor. ptc. *λιπών*, aor. inf. *λιπεῖν* corresponds to the type VED aor. ptc. *vidán*, aor. inj. 3 sg. *vidát*. Closer scrutiny reveals, however, that the Greek accentuation of these forms is not correlated with the ablaut grade of the root, but is dependent on the aspect of the stem: present stems generally have initial accentuation, aorist stems have suffixal accentuation.[60] This redistribution gives rise to historically unexpected accentuations of the type prs. ptc. *γλύφων*, prs. inf. *γλύφειν* and prs. ptc. *βαίνων*, prs. inf. *βαίνειν* with zero grade of the root; cf. the accentuation of the corresponding Vedic types *tudáti*, *mriyáte*, which probably represents a more original state of affairs. Since, moreover, participles and infinitives cannot reveal possible paradigmatic accent alternations between for example the 3 singular and the 3 plural of a stem, the Greek evidence for verbal accentuation is of very limited use for our examination of the Balto-Slavic paradigmatic mobility.

3. Germanic

An Indo-European language branch which must be analysed in an examination of the Proto-Indo-European accentuation system and structure of final syllables is Germanic. Before the accent was fixed on the initial syllable of the word in the prehistory of Germanic, the reflexes of Proto-Indo-European non-initial unvoiced stops and **s* had developed two variants depending on the original position of the accent. The distribution of these variants provides an indirect picture of the pre-Proto-Germanic accent system. The so-called Germanic "auslautgesetze" play an important role in the discussion of a distinction between two types of long final syllables in the proto-language.

59. Wackernagel (1877 [1955]: 1060–1061); Hirt (1929: 295).
60. Cf. Schwyzer (1939 [1968]: 673); Hirt (1929: 294–295).

3.1. Prosodic system

In Proto-Germanic the free accent of Proto-Indo-European had been replaced by a fixed accent on the initial syllable of the word. Before the fixation of the accent, a phonetic law had resulted in a split of the pre-Proto-Germanic unvoiced fricatives, **f þ h hʷ s* (< PIE **p t k/k̂ kʷ s*), depending on the original position of the accent: in non-initial position they had become voiced, **b d g gʷ z*,[61] unless immediately following the accented syllable. This law is named "Verner's Law" after its discoverer Karl Verner.[62] The distinction between voiced and unvoiced fricatives acquired phonological relevance when the accent became fixed. Classical examples of Verner's Law are the words for 'brother' and 'father':

PIE **bʰráh₂tōr* > pre-PGE **bróþōr* > PGE **brōþōr* > GO *broþar*
PIE **pə₂tḗr* > pre-PGE **faþḗr* > PGE **fadēr* > GO *fadar*

The accentuation system that may be reconstructed on the basis of the segmental developments conditioned by Verner's Law to a large extent agrees with the Vedic and Greek accentuation systems; for the two words mentioned above cf. VED *bhrā́tā*, *pitā́*. A potentially very interesting circumstance in Germanic is the preservation of paradigmatic mobility in cases like OSAX prt. 1 sg. *warth*, 1 pl. *wurdun* < PGE **warþa*, **wurdume* < pre-PGE **wárþa*, **wurþumé*, confirming the accentuation of VED pf. 1 sg. *vavárta*, 1 pl. *vavṛtimá*. As we shall see, however, in the categories that are relevant to our purposes, no alternations of this kind are found.

3.2. Final syllables: the Germanic auslautgesetze

The amount of literature on the problem of the reflexes of Proto-Indo-European final syllables in the Old Germanic dialects, the "Gemanic auslautgesetze", is a good indication of the disagreement that has been and still is about the problem. The difference of opinion is nourished not only by the usual problems concerning final syllables such as the entanglement of phonological and morphological factors, but also by the diverging views on the prosodic properties of Proto-Indo-European final syllables and by the

61. Except **z*, these consonants were probably realised either as stops or fricatives, depending on their position in the word. The fate of PGE **gʷ* (see e.g. Krause 1953: 116–117) shall not concern us here.
62. Verner (1875).

heterogeneous nature of the material provided by the Old Germanic dialects. Since the general purpose of the present work is to investigate the possible Proto-Indo-European sources of the Balto-Slavic mobility, the Germanic auslautgesetze are not treated for their own sake but in order to shed light on the structure of final syllables of the proto-language. This means that a number of details in the reconstruction of the development of the Germanic final syllables will not be mentioned here. For an extensive treatment of the problem including criticism of the existing literature, the reader is referred to Boutkan's (1995) monograph.[63]

The most complicated part of the Germanic auslautgesetze, the part which is relevant to our purposes, concerns the development of Proto-Indo-European final long vowels and short diphthongs in polysyllabic words.[64] There is general agreement that pre-Proto-Germanic long diphthongs are preserved as diphthongs in Germanic, e.g. GO num. *ahtau* 'eight' from *-*ōu̯*, GO *ā*-stem dat. sg. *gibai* from *-*āi̯*. The development of consonants and short vowels is only of indirect interest to us in so far as they may provide supplementary evidence for the development of long vowels and short diphthongs. In the following I shall mention the most important approaches to the development of Germanic final syllables, namely the traditional theory with the elaborations of it proposed by Lane and laryngealistic scholars, and the "final obstruent" hypothesis. Further comments and references to the approaches sketched here can be found in § 4.2 below.

Historical remarks

The Germanic auslautgesetze were explained by Paul, Møller and Leskien as being dependent on accentual differences, on the pre-Proto-Germanic distinction between *$\bar{a}$ and *$\bar{o}$, and on the presence or absence of final nasals respectively.[65] Hanssen proposed to connect the development of Germanic final syllables and the tonal distinctions in final syllables in Greek and Lithuanian.[66] This proposal was elaborated by Hirt[67] and, with modifications such as that of Lorentz (acute vowels are not shortened if followed by *-*s*),[68] soon

63. See also Makaev (1962) with references.
64. I leave monosyllabic words out of consideration.
65. See Boutkan (1995: 105–109, 121–125) with references.
66. Hanssen (1885).
67. Hirt (1892: 195–219).
68. Lorentz (1895); Hirt, while being sceptical of this addition in (1895: 54), accepted it in (1929: 93); cf. Streitberg (1896 [1974]: 180); note that Lorentz

became the theory presented in the standard handbooks.[69] According to this theory, Proto-Indo-European acute (bimoric) and circumflex (trimoric) final long vowels yielded Proto-Germanic short and long vowels respectively. For instance, GO nom. sg. *giba* with a short final vowel corresponds to GK *φυγή*, LI *rankà* with acute tone; and GO adv. *galeiko* (originally an ablative) with a long final vowel corresponds to GK adv. *καλῶ-ς*, LI gen. sg. *alk̃o* with circumflex tone.[70]

Like the standard theory, but in contrast to the "final obstruent" hypothesis (see below), in the framework put forward by Lane (1963) it is assumed that the development of Germanic final syllables was conditioned by the distinction between two types of Proto-Indo-European long final syllables.[71] By insisting on regarding vowels as trimoric only if they are arguably the result of contractions implying at least one long vowel (e.g. *ā*-stem nom. pl. **-ā-es*), Lane offered a reinterpretation of the standard theory without reference to acute or circumflex tones in the proto-language. One of the conclusions reached by Lane was that the differing quantities of the desinences of *ā*-stem OHG gen. sg. *-a* and nom. pl. *-ā* reflect a difference between earlier bimoric and trimoric **-ās*. Lane accounted for the various Germanic *n*-stem nominative singular forms reconstructing only bimoric PIE **-ēn* and **-ōn*, dismissing the evidence for trimoric **-ẽ̄* and **-ȭ*. Trimoric variants would, according to Lane, not only be difficult to understand from an internal Proto-Indo-European point of view, but they would also require disyllabic scansions in the Indo-Iranian metres, which are not found. Instead, Lane assumed that the long desinences of GO fem. *tuggo*, neut. *haírto* and masc. OENG *guma*, OSAX *gumo*, OHG *gomo*, traditionally traced back to Proto-Indo-European trimoric **-ȭ*, are analogical to the oblique stems.[72] While details in Lane's interpretation of various forms may be adjusted,[73] the general lines of his theory seem plausible. I agree in his conclusion that the nominative singular forms of the Germanic *n*-stems are not evidential of competing forms, **-ēn*, **-ōn* vs. **-ẽ̄*, **-ȭ*, but can be derived from the former pair. By not referring

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explicitly maintained that final **-t* did not have a similar effect, "da *-t* schon früh abgefallen ist" (1895: 380).

69. Streitberg (1896 [1974]: 178–191); Brugmann (1886 [1897], 2: 930–932; 1904: 276–277); Krahe and Meid (1942 [1969]: 132–135); Krause (1953: 88–91).
70. Hirt (1929: 93).
71. For Lane's view cf. Boutkan (1995: 125–130).
72. Similarly Kortlandt (1978c: 293 with n. 27; 1986a: 156).
73. Cf. Boutkan (1995: 130).

to tones in the proto-language, Lane's analysis provides a sort of transitional hypothesis between the traditional and the laryngealistic view.

An ultimately non-tonal pre-Proto-Germanic distinction between long bimoric and trimoric vowels in final syllables is assumed also by scholars like Jasanoff, who traces this distinction back to a Proto-Indo-European distinction of **Vh*, **V̄* vs. **VhV*.[74] Like in Lane's theory, a final **-s* is apparently not thought to excert influence on the development of a preceding long vowel in Proto-Germanic.[75] While other laryngealistic reinterpretations of the distinction between two types of Proto-Indo-European long syllables diverge in detail, the basic conclusion remains that Germanic, at least potentially, does provide evidence of the distinction between long and hiatal desinences in the proto-language.

According to the "final obstruent" hypothesis, represented in this survey by the version of it given by Kortlandt, the Germanic auslautgesetze do not reflect the Proto-Indo-European distinction between long and hiatal final syllables.[76] Instead, the Germanic shortening of some long vowels and short diphthongs and preservation of others is conditioned by the absence or presence of a final obstruent in pre-Proto-Germanic. For instance, the short final vowel of GO nom. sg. *giba* goes back to pre-PGE **-ō* (cf. VED *jihvā́*), while the long final vowel of GO adv. *galeiko* reflects pre-PGE **-ōt* (cf. VED abl. sg. *devā́t*). The "final obstruent" hypothesis, appealing in its phonetic simplicity, meets difficulties when it comes to the development of certain forms. For instance, Kortlandt's explanation of GO gen. pl. *gibo* as a reflex of pre-PGE "**-ōan*" with analogical reintroduction of the stem-suffix before the ending[77] seems quite unnatural. Another problem to the "final obstruent" hypothesis is the short final vowel of the GO prs. 3 sg. *wili* for expected **wilei* from pre-PGE **-īt* (originally an optative form), in contrast to the long vowel of GO prs. 2 sg. *wileis* < pre-PGE **-īs*. To explain this form, Boutkan in the appendix of his book proposed an addition to the law of shortening of final syllables in Germanic: "apparently, shortening affected high long vowels irrespective

74. Jasanoff (2004a: 249–251): PIE **V̄* reflects pre-PIE **V̄* and **VV*; in absolute final position, PIE **V̄* merged with **VhV* in Germanic and Balto-Slavic; cf. (2002); in Bammesberger (1990), a non-tonal framework is also applied.
75. Jasanoff (2004a: 250); Bammesberger (1990: 102–103).
76. Kortlandt (1986a: 155–156); cf. (1983b: 171–173; 1986b: 437–438); see the exegesis of Kortlandt's views in Boutkan (1995: 138–144); final obstruents are also regarded as relevant e.g. by Jellinek (1891: 60–74); Kuryłowicz (1968: 15 with fn. 10); Beck (1975: 22).
77. Kortlandt (1978c: 293); Boutkan (1995: 138, 140).

of the originally following *-t."[78] This *ad hoc* modification, which not only requires the shortening law to distinguish between high and low vowels but also between high vowels followed by *-*s* and high vowels followed by *-*t*, significantly detracts from the simplicity of the "final obstruent" hypothesis. Perhaps a more plausible suggestion would be to derive GO *wili* from pre-PGE *-*ī*, a substitution of *-*īt* by analogy with the *-*t*-less ending of the Proto-Indo-European perfect 3 sg.[79]

Evaluation

Since the Indo-Iranian metrical data and the Greek tones (and, as we shall see in Ch. 4, the Balto-Slavic evidence) clearly point to a Proto-Indo-European distinction between long and hiatal endings, there is no reason to reject *a priori* a hypothesis of the development of the Germanic final syllables which requires a similar distinction in pre-Proto-Germanic.[80] If this hypothesis is accepted, the Germanic final syllables are relevant to the reconstruction of a distinction between long and hiatal desinences in Proto-Indo-European. The practical value of this evidence is limited, however, especially because it is uncertain if the distinction was preserved before final *-*s*. On the other hand, we also know that certain desinences were closed by an obstruent in pre-Proto-Germanic, and it is not unlikely that the presence or absence of a final stop would influence the development of the preceding vocalism. If this hypothesis is accepted, the Germanic auslautgesetze offer no evidence regarding the Proto-Indo-European distinction between long and hiatal desinences and are, accordingly, irrelevant to the present study.

Both the laryngealistic version of the standard theory and the "final obstruent" hypothesis account quite satisfactorily for the major part of the material. As for the purpose of the present subsection, which is to establish whether or not Germanic is relevant to the reconstruction of the structure of Proto-Indo-European final syllables, we may conclude that since the Germanic material offers no unambiguous answer, we should not base far-

78. Boutkan (1995: 464).
79. Kortlandt (pers. comm.) accepts Boutkan's phonetic explanation of GO *wili*, rejecting the idea proposed here of an analogical development.
80. Cf. the alternative views of Kortlandt (1986a: 156); Boutkan (1995: 130); while the Dutch scholars reject an explanation of the Germanic auslautgesetze in terms of a tonal distinction, to my knowledge they have not criticised the laryngealistic reinterpretation.

reaching conclusions on data from this language branch, but only refer to it as supplementary evidence.

3.3. Paradigmatic accent: Verner's Law

As mentioned in § 3.1 above, the traces left by Verner's Law in the Proto-Germanic segmental system allow us to catch a glimpse of the pre-Proto-Germanic accentuation system. Since the Old Germanic dialects have experienced considerable changes on the phonological and morphological level and, more importantly, since Germanic evidence is applicable only in words containing Proto-Indo-European unvoiced obstruents in medial position, Germanic to a certain extent takes a secondary role compared to Vedic and Greek in the reconstruction of the Proto-Indo-European accentuation system.

Nominal system

It would be theoretically possible to find Verner alternations within one paradigm of a noun in a Germanic language, for example, hypothetically, GO *ā*-stem nom. sg. "*wranga*", nom. pl. "*wrāhos*", reflecting pre-PGE "**wrankā́*", "**wránkās*". There are, however, no incidences of paradigmatic Verner alternations in the nominal system of any Germanic dialect. What we find in Germanic are different Verner alternants of a noun in different Germanic languages; in the few cases where Verner alternants appear in one language, they usually represent different lexemes. In this subsection we shall examine in some detail the significance of these doublets in the various stem-classes. In all stem-classes it should be considered[81] if the doublets are the result of (1) derivational accent replacements accompanying nominalisations of adjectives (the type PIE **tomh₁ó-* 'cutting', whence **tómh₁o-* 'a cut');[82] (2) different accentuations of different formations from the same root (e.g. root-accented *nomen actionis* vs. desinentially accented *nomen rei actae*); (3) different accentuations of thematised athematic formations; (4) or the influence from a verb containing the same root. Note that additional references to the various views presented here are given in § 4.3 below.

Some Germanic masculine *o*-stems have different Verner alternants, for instance ONOR *hestr* 'horse' < PGE **hanhista-* vs. OHG *hengist* 'gelding' <

81. For similar considerations see Schaffner (2001: 98, 376–378).
82. Cf. Rasmussen (1989a: 157).

PGE **hangista-*.[83] This and similar accent doublets are adduced by Stang and others as an argument for paradigmatic mobility in masculine *o*-stems in Proto-Indo-European.[84] The doublets are regarded as the result of a generalisation of one alternant or the other in different languages. While this assumption provides an easy explanation of the Germanic accentual doublets, the fact that it is not supported by evidence from Vedic or Greek nor by internal reconstruction of Proto-Indo-European renders it plausible that the doublets have other explanations, cf. the four possibilities mentioned above.

In the neuter *o*-stems we also find Verner doublets, e.g. OHG *hlid* 'cover' < PGE **hliþa-* vs. OHG (*h*)*lit* 'cover' < PGE **hlida-*.[85] In contrast to the masculines, there is some reason to assume paradigmatic mobility in the neuters in the proto-language, although one should not exclude the possibility that certain neuter Verner doublets reflect two independent words with different accentuations.[86] In any case, Germanic does not allow us any insight in the concrete distribution of differently accented forms in the paradigm. The arguments outside Germanic for assuming paradigmatic mobility in the neuter *o*-stems are considered in § 4.3 below.

In the *ā*-stems the situation is similar to that of the masculine *o*-stems.[87] On the basis of examples like GO *ahana* 'chaff' < PGE **ahanō* vs. OHG *agana* 'chaff' < PGE **aganō*, it has been maintained that paradigmatic mobility was found in *ā*-stems in the proto-language. The lack of evidence of mobility in the *ā*-stems in other languages, however, makes the assumption plausible that the Germanic accent doublets reflect different lexemes with different accentuation, cf. the possibilities sketched above.[88]

In the *i*- and *u*-stems we find Verner doublets like GO *i*-stem *gabaúrþs* (*-þ-*) 'birth' < PGE **ga-burþi-* vs. OHG *giburt* 'birth' < PGE **ga-burdi-*.[89] Based on Germanic examples like this, the ablaut alternations of the suffix (see § 4.3 below) and the fact that we find accentual doublets in Indian *ti-*

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83. The masculine *o*-stem Verner doublets are listed in Barber (1932: 91–93); Schaffner (2001: 114–174).
84. See Stang (1969 [1970]), also for the remaining stems; but cf. Garde (1976, 2: 457–458 n. 453).
85. The neuter *o*-stem Verner doublets are listed in Barber (1932: 114–116); Schaffner (2001: 175–265).
86. Schaffner (2001: 112–113).
87. The *ā*-stem Verner doublets are listed in Barber (1932: 61–62); Schaffner (2001: 378–420).
88. Schaffner (2001: 376–378).
89. The *i*- and *u*-stem Verner doublets are listed in Barber (1932: 23–24, 30–31, 37); Schaffner (2001: 430–433, 447–487, 496–512).

stems (see § 1.3 above), a Proto-Germanic paradigm reflecting Proto-Indo-European paradigmatic mobility is sometimes reconstructed, e.g. *i*-stem nom. sg. **burþiz*, gen. **burdīz* (or **-aiz*); *u*-stem nom. sg. **hunhruz*, gen. **hungrauz*.[90] The possibility should be seriously considered, however, of the doublets having arisen in a system without paradigmatic mobility, like the *o*- and *ā*-stems. It should be noted that if the doublets reflect paradigmatic mobility, they gives us no indication of the original distribution of the accent in the paradigm.

Germanic reveals no traces of accentual mobility in the few surviving *r*-stems.[91] In the *n*-stems we often find accent doublets in the various dialects, e.g. OHG *haso* 'hare' < PGE **hasan-* vs. OENG *hara* 'hare' < **hazan-*, indicating the existence of a pre-Proto-Germanic mobile paradigm.[92] The assumption of original mobility in the *n*-stems is further supported by the fact that we often find Verner doublets within one and the same language,[93] e.g. OENG *seaþa* vs. *seada* 'heartburn'; MHG *sōte* vs. *sōde* 'heartburn'. As in the *i*- and *u*-stems, except for the ablaut grades of the suffix, there are no indications of the distribution of root-accented and desinentially accented forms.

Verbal system

While the cornerstone of Verner's "Eine ausnahme der ersten lautverschiebung" (1875) was a comparison of the accentuation of the Vedic perfect and the paradigmatic Verner alternations of the Germanic preterite, we do not find any indications of paradigmatic mobility in the Germanic categories that are relevant to this study, i.e. the categories with correspondences in Baltic and/or Slavic. The general picture presented by Germanic confirms the Vedic evidence: verbs with full grade of the root had root-accentuation, e.g. GO *ga-teihan*, OHG *zīhan* < PGE **tīhan-* < PIE **déi̯k̂-e/o-*; and verbs with zero grade of the root had suffixal accentuation, e.g. ONOR *vega* < PGE **wegan-* < PIE **u̯ik-é/ó-*.[94]

Like in the nominal system, in the present tense of the verbs we find accent doublets of the type GO *þreihan* 'throng' < PGE **þrinha-* vs. OENG *þringan* 'press on' < PGE **þringa-*. As Stang maintained, original paradig-

90. Schaffner (2001: 456, 501).
91. Barber (1932: 10).
92. The masculine *n*-stem Verner doublets are listed in Barber (1932: 168–169); Schaffner (2001: 536–574).
93. Barber (1932: 153).
94. Cf. Streitberg (1896 [1974]: 291).

matic accent alternations would explain such cases.[95] On the other hand, since the evidence in favour of mobile accentuation in thematic verbs is virtually limited to a few Germanic Verner doublets, it seems more reasonable to follow alternative explanations; for instance, the voiced Verner variant in OENG *þringan* may have been introduced from the preterite.[96] Because of the insufficient preservation of the present of the athematic verbs in Germanic, we cannot draw any safe conclusions about their accentuation.

4. Proto-Indo-European

The Proto-Indo-European phonological system taken as the point of departure in this study is almost identical to the system of Mayrhofer's *Lautlehre* (1986). The vowel system consisted of five short and five long vowel phonemes: **i e a o u ī ē ā ō ū*. The long vowels had a very limited distribution in the proto-language; most long vowels in the Indo-European languages are the result of contraction of a short vowel with a following laryngeal. When next to a syllabic segment, the realisation of **i u* was non-syllabic **i̯ u̯*; although **i u* and **i̯ u̯* were probably in complementary distribution in Proto-Indo-European, I follow the tradition and distinguish them in the reconstructions.[97] While basically consonantal, the four sonorants **r l m n* had a syllabic realisation between consonants. Like in the case of **i u* vs. **i̯ u̯*, the consonantal and vocalic realisations of the sonorants were in complementary distribution, but the allophones are distinguished in the reconstructions as consonantal **r l m n* vs. vocalic **r̥ l̥ m̥ n̥*.

Proto-Indo-European probably had four fricatives, **s h_1 h_2 h_3*; the three latter sounds, the laryngeals, were basically consonantal but had the vocalic variants **$ə_1$ $ə_2$ $ə_3$*.[98] There were three labial stops, **p b b^h*, three dental stops, **t d d^h*, three palatal stops, **$\hat{k}$ $\hat{g}$ $\hat{g}^h$*, three velar stops, **k g g^h*, and three labiovelar stops, **k^w g^w g^{wh}*.

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95. Stang (1957 [1965]: 178–179; 1969 [1970]: 259).
96. Kluge and Seebold (1883 [1999]: 194).
97. According to Mayrhofer (1986: 160–161), **i u* and **i̯ u̯* probably had independent phonological status; but cf. Bernhard Forssman (1988: 63).
98. Independent phonological status of **h_1 h_2 h_3* and **$ə_1$ $ə_2$ $ə_3$* is assumed by Rasmussen (1983 [1999]: 67); see also (1992b [1999]: 474); the question is irrelevant to the problem of Balto-Slavic accentual mobility.

4.1. Prosodic system

As we have seen in the preceding sections, the Proto-Indo-European accent may be reconstructed on the basis of correspondences between Vedic and Greek, where the position of the accent is directly attested, and Germanic, where the outcome of Verner's Law provides supplementary evidence. The agreement between these language branches on the original accentuation system is significant.

In the proto-language no more than one syllable per word was prosodically prominent compared to the other syllables. The position of the accented syllable in the word was unpredictable on the basis of the phonological shape of the word; Proto-Indo-European had a free accent.[99] Certain word-forms did not contain an accented syllable. The accented syllable was probably characterised by a high tone as opposed to the low tone of unaccented syllables. As we shall see in § 4.2 below, there were no syllabic tones;[100] the mora was not a relevant unit of reference in the prosodic system. The prosodic system of Proto-Indo-European was similar to that of Vedic.

According to most theories on Indo-European ablaut, i.e. the vowel alternations between PIE **Ø*, **e*, **o*, **ē* and **ō*, the origin of this phenomenon is related to the accent (**e* being basically the accented vocalism, **o* and **Ø* the unaccented ones). It is also generally recognised that already at the last stage of the proto-language the different ablaut grades occur quite independently of the position of the accent.[101] A classical example is the word for 'wolf', where VED *vṛ́ka-*, GK *λύκος* and PGE **wulfaz* all point to PIE **u̯l̥kʷo-* with an accented zero grade; or VED *rocá-* 'shining' and GK *λευκός* 'light' from PIE **leu̯kó-* with an unaccented *e*-grade. While it is generally not safe to reconstruct the accentuation of a word-form solely on the basis of the ablaut grades of its constituent morphemes, in certain instances, for example in the perfect system or in the distribution of certain suffixal allomorphs, the correlation of accent and ablaut grade given above still seems to be valid in the proto-language and may be considered in the analyses.

Elaborating Dybo's hypothesis of Proto-Indo-European tones (see Ch. 1 § 4, "Illič-Svityč and Dybo"), Kortlandt has put forward the view that "late Proto-Indo-European possessed a tonal distinction between 'high' and 'low'

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99. Cf. the surprising statement to the opposite of Bennett (1972: 100), repeated in Boutkan (1995: 28 fn. 2).
100. Curiously, Ternes in his (2001) paper entitled "Indogermanisch eine Tonsprache?" does not address questions of Proto-Indo-European prosody.
101. See e.g. Rix (1976: 33–34); Meier-Brügger (2000: 142).

morphemes."[102] According to this view, which is unrelated to the question of syllabic tones in Proto-Indo-European final syllables discussed in the following subsection, Vedic, Greek, Balto-Slavic and internal reconstruction point to a Proto-Indo-European "level tone system".[103] It remains unclear to me[104] whether this hypothesis implies that each constituent morpheme of a Proto-Indo-European word had a surfacing distinctive high or low tone, which would render the accent redundant, or that the tones were distinctive only at a pre-stage of Proto-Indo-European, having become redundant in the proto-language because of the distinctive accent. If the latter model is intended, the question of distinctive tones is irrelevant to the purpose of the present work which is not concerned with the prehistory of Proto-Indo-European; as for the former model, I see no reason to introduce more prosodic entities in the proto-language than accent (and, of course, quantity).

4.2. Final syllables

An important issue in the discussion of Proto-Indo-European prosody is the question of syllabic tones in final syllables or, in a more neutral formulation, the distinction between two kinds of long final syllables.[105] The assumption of tones or similar prosodic properties in the final syllables of Proto-Indo-European is based on correspondences like GK nom. sg. *φυγή*, LI *galvà* vs. GK gen. sg. *φυγῆς*, LI *galvõs*. While the desinences of the first pair have acute tone in Greek and Lithuanian,[106] those of the second pair have circumflex tone. Similar correspondences are observable in a number of forms. In Indo-Iranian the desinences corresponding to Greek and Lithuanian desinences with circumflex tone in some cases count as two syllables in the metre as opposed to the monosyllabic scansion of desinences with an acute tone. It is possible that Proto-Indo-European long final syllables also developed differently in Germanic depending on their structure. Since the distinction between two kinds of long final syllables is not understandable from an internal point

102. Kortlandt (1986a: 158); see also (2004c: 164); Lubotsky (1988: 2–7, 170–174); Beekes (1995: 154); and the remarks of Vermeer (2001: 133 with fn. 2).
103. Kortlandt (1986a: 159).
104. Despite Kortlandt's patient attempts to clarify his views to me.
105. Remember the broadened use introduced in Ch. 1 § 3 of a "Proto-Indo-European final syllable", referring also to two contiguous vowels possibly separated by a laryngeal.
106. Pre-Lithuanian acute final syllables have become shortened in Lithuanian by Leskien's Law (see Ch. 3 § 1.3); I refer to such shortened syllables as "acute".

of view in the separate history of these languages, it must reflect a distinction inherited from their common ancestor. Note that this distinction is independent of the accent: the two types of long final syllables were distinguished both when accented and unaccented.

In this section we shall gather up the threads of the examinations of the Indo-Iranian, Greek and Germanic final syllables (§ 1.2, § 2.2 and § 3.2 above) in order to establish the structural characteristics of the Proto-Indo-European final syllables. This problem is important to the formulations of Saussure's Law and Leskien's Law in Lithuanian, which depend on the structure of the final syllables; see Ch. 3 § 1.3. Furthermore, according to the hypothesis that will be presented in Ch. 4 (the Mobility Law), the different structure of Proto-Indo-European final syllables was the deciding factor in the shaping of the Balto-Slavic mobile accent paradigms.

Traditional view

In the traditional, non-laryngealistic reconstruction of Proto-Indo-European, the tonal distinctions found in Greek and Lithuanian final syllables and supported by Germanic and Indo-Iranian evidence were traced back directly to the proto-language as a distinction between two syllabic tones, the "acute" and the "circumflex".[107] It was soon recognised that Proto-Indo-European syllables with acute tone ("Stoßton", "bimoric length") had a different origin than those with circumflex tone ("Schleifton", "trimoric length"), the latter being usually regarded as the result of a loss of a mora. Brugmann mentioned three sources of Proto-Indo-European circumflex vowels:[108] (1) Loss of a mora after a long vowel, e.g. *ā*-stem gen. sg. *-*ā̃s* < pre-PIE *-*ā-so*; (2) contraction of two contiguous vowels, e.g. *ā*-stem nom. pl. *-*ā̃s* < pre-PIE *-*ā-es*; (3) loss of the second part of a long diphthong, e.g. *u̯*-stem acc. sg. **gʷõm* < pre-PIE **gʷṓu̯-m*. Since these developments had taken place already in pre-Proto-Indo-European, the syllabic tones were distinctive at the last stage of the proto-language. Tones also had distinctive value in short diph-

107. The Lithuanian and Greek tones were compared by Kurschat (1876: 68); Bezzenberger (1883: 66–68); Germanic evidence was added by Hanssen (1885); cf. the accounts of Streitberg (1896 [1974]: 158); Hirt (1929: 199); Proto-Indo-European syllabic tones are assumed in standard works like Brugmann (1886 [1897], 2: 947–949; 1904: 53–54); Schwyzer (1939 [1968]: 382); Krahe (1943 [1963]: 53–54); cf. Szemerényi (1970 [1990]: 80–82) with references; Klingenschmitt (1992: 94–95).

108. Brugmann (1886 [1897], 2: 948–949; 1904: 54); cf. Hirt (1929: 202–203).

thongs; the difference between GK *o*-stem nom. pl. *ἀγροί* and loc. sg. *Ἰσθμοῖ* was regarded as a direct reflex of a Proto-Indo-European distinction between acute **-ói̯* and circumflex **-oĩ* (< pre-PIE **-o+i*).

Kuryłowicz

Before we proceed to further elaborations of the traditional view, a fundamentally different approach deserves mention, namely Kuryłowicz's rejection of the identification of the Greek and Lithuanian tones. According to Kuryłowicz, the tonal systems of Greek and Balto-Slavic are incompatible.[109] The tones have arisen independently in the two branches:

> on voit qu'il n'existe aucun lien historique entre les intonations baltiques et les intonations grecques. Aucun des deux systèmes n'est hérité de l'époque indo-européenne.[110]

At least in his early works, Kuryłowicz spoke of the "caractère tardif et presque historique des intonations grecques."[111] In Balto-Slavic there never was a tonal opposition in final syllables. Contrary to the traditional view, Kuryłowicz maintained that the different accentuation of LI nom. sg. *vietà* AP 2 and gen. *viẽtos* together with the different quantities of the final vowels does not reflect a Proto-Indo-European distinction between two types of long vowels but was simply determined by the absence or presence of a final consonant in the two desinences; see Ch. 3 § 1.3.

Kuryłowicz's hypothesis on the independence of the Greek and Lithuanian tones, though occasionally accepted,[112] is generally rejected. While his new formulation of Saussure's and Leskien's Laws in Lithuanian are an interesting contribution which is to be taken seriously, the premises on which he based his explanation of the development of the Greek tones are unacceptable. Kuryłowicz's attempts to show that the tones have arisen in the internal

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109. "Die OPPOSITION zwischen dem steigenden Akut und dem fallenden Zirkumflex besteht im Balt.-Slaw. bloß in der Anfangssilbe des Wortes […]. Das Gr. unterscheidet sie ausschließlich in der Endsilbe" (Kuryłowicz 1968: 14, emphasis as in original); and somewhat later on the same page: "So schließen, vom phonologischen Standpunkt betrachtet, die beiden Systeme eine gemeinsame vorhistorische Quelle aus."
110. Kuryłowicz (1934: 33); see also (1939 [1973]: 236–238).
111. Kuryłowicz (1934: 28); see § 2.2 above, "Historical remarks".
112. Lane (1963: 158–159) (see the following paragraph); Bennett (1972: 115); see also Rix (1976: 132).

prehistory of Greek are complicated to such an extent that they rather demonstrate the implausibility of his explanation.

Lane

Accepting Kuryłowicz's rejection of a historical connection between the Greek and Lithuanian tones,[113] Lane concentrated on Vedic and, above all, Germanic material in his modification of the traditional theory of Proto-Indo-European final syllables. He discarded the view that the distinction between two kinds of long final syllables in the proto-language was one of tones, claiming that the right interpretation of the distinction was in terms of bimoric vs. trimoric vowels. While the interpretation in terms of moras had long been on the market, Lane insisted on regarding long vowels as trimoric only if they could plausibly be the result of a contraction involving at least one long vowel.[114] Accordingly, he considered the *ā*-stem PIE nom. pl. **-āsˌ* from **-ā-es* to be trimoric, whereas *o*-stem PIE nom. pl. **-ōs* from **-o-es* could only be bimoric. We shall see below that a laryngealistic framework implies a somewhat different interpretation of these cases.

To some extent the reference to an opposition of bimoric vs. trimoric instead of acute vs. circumflex vowels has a terminological character. There are, however, cases where it has important bearing on the reconstruction of Proto-Indo-European final syllables. Since according to Lane there is no possibility of a prosodic distinction in short diphthongs, the traditionally assumed opposition between acute and circumflex **-oi̯* as reflected in the Greek pair nom. pl. *οἶκοι* vs. loc. sg. *οἴκοι* (see § 2.2 above, "Final *-οι* and *-αι*") cannot have existed in Proto-Indo-European. Similarly, the lack of evidence of contraction in the the *n*-stem nominative singular, which is never disyllabic in the Indo-Iranian metres,[115] renders it necessary to explain the Germanic reflexes of these forms without reference to prosodic distinctions in the proto-forms (see § 3.2 above, "Historical remarks").

Both the distinction between acute and circumflex vowels and that between bimoric and trimoric vowels have the disadvantage of requiring an

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113. "I am persuaded by [Kuryłowicz's] arguments, though there are certain details of his exposition about which I am doubtful or, perhaps rather, do not understand." (Lane 1963: 159).
114. In contrast to Antonsen (1970: 72), who maintained that "trimoric" vowels were still sequences of two vowels in post-Indo-European, Lane assumed that the contractions had already taken place in the proto-language.
115. Lane (1963: 160–161).

extra relevant factor in the Indo-European prosodic system. From an economical point of view it is unattractive to have a prosodic feature in final syllables that is not found in other positions. Obviously, it cannot be excluded *a priori* that such a factor was present in the Indo-European proto-language – an obvious parallel is Greek, where tones are distinctive almost exclusively in final syllables – but an analysis without reference to an extra prosodic feature in the system is, if possible, preferable.

Laryngealistic view

The application of the laryngeal theory suggests a reinterpretation of the prosody of the Proto-Indo-European final syllables. In Greek, and perhaps also in Germanic and Indo-Iranian, sequences of two vowels behave alike whether separated by a laryngeal or not, e.g. PIE dat. sg. **-óei̯* > GK *ἀγρῷ* and PIE dat. sg. **-áh₂ai̯* > GK *φυγῇ*. Since the laryngeals were still present at the time of the dissolution of the Indo-European proto-language, we may conclude that the distinction traditionally assumed between acute and circumflex long vowels was actually a distinction between simple long vowels and sequences of two vowels possibly separated by a laryngeal. The distinction between two types of long syllables in Proto-Indo-European is thus most directly reflected in the Indo-Iranian monosyllabic vs. disyllabic scansions of long vowels.[116] The assumption of the existence of Proto-Indo-European uncontracted sequences of vowels allows us to dispose of the syllabic tones traditionally reconstructed.[117]

The reconstruction of a Proto-Indo-European prosodic system without tonal distinctions in final syllables must provide an alternative account of two separate issues that are not immediately interpretable in terms of monosyllabic and disyllabic final structures, viz. the nominative singular of *n*-stems and the reflexes of final **-oi̯*.[118] While the former issue is problematic in Ger-

116. See Hollifield (1980: 20 and passim).

117. Jasanoff assumes that **VV* had contracted in the proto-language, merging with original **V̄* but being distinct from **VhV* and **Vh* (2004a: 247–248). While Jasanoff's chronology also allows him to dispose of both tonal oppositions and vowels in hiatus in the proto-language, it meets difficulties when it comes to cases like Greek dat. sg. *ἀγρῷ* (2004a: 248 fn. 2); moreover, as will be argued in Ch. 4, the pre-Proto-Balto-Slavic Mobility Law indicates that **VV* was still distinct from **V̄* at a post-stage of Proto-Indo-European.

118. While accepting the laryngeal theory, on the basis of the nominative singular of the *n*- and *r*-stems Hollifield (1980: 49) maintained that "contrasting syllable intonations evidently did exist already in Proto-Indo-European".

manic only, the latter has consequences for the analyses of Greek, Germanic, Baltic and Slavic. Since the Greek and Germanic data were discussed in § 2.2 and § 3.2 above, I shall limit the following discussion to Baltic and Slavic.

In Lithuanian, the tonal differences shown by loc. sg. *namiẽ*, ipv. 3 ps. *tesupiẽ* vs. adj. *o*-stem nom. pl. *gerì* were traditionally traced back to Proto-Indo-European. It is likely, however, that the circumflex tone of *namiẽ* is simply the regular reflex of PIE **-oi̯*; the circumflex of *tesupiẽ* may be the result of a Balto-Slavic shortening of PIE **-ói̯h₁t* > pre-PBS **-āˀi̯t* > PBS **-ˈai̯* > LI *-iẽ* (see Ch. 4 § 3.2, "Optative"); and the acute final vowel of *gerì* may not reflect **-oi̯* but the neuter desinence **-ah₂* plus **-i*(*h*) (see Ch. 4 § 3.1, "Nominative plural").

In Slavic, a Proto-Indo-European tonal distinction has been made responsible for the double reflex of the diphthong **-oi̯*. It was maintained that acute PIE **-oi̯*, **-ai̯* yielded CS **-i*, e.g. OCS nom. pl. *vlьci* (cf. LI *gerì*, GK *ἀγροί*) whereas circumflex **-oi̯*, **-ai̯* yielded CS **-ě*, e.g. OCS loc. sg. *vlьcě* (cf. LI *namiẽ*, GK *Ἴσθμοῖ*).[119] Unexpected in this theory, however, is the correspondence between OCS ipv. 2/3 sg. *nesi* and LI *tesupiẽ*, GK *παιδεύοι* (both pointing to a circumflex desinence).[120] I accept Holzer's view that PS **ai̯* yielded CS **i* in final position and **ě* elsewhere, whereas PS **āi̯* is reflected as CS **ě* in all positions.[121] This distribution explains PS nom. pl. **ˌu̯ilkai̯* > CS **vȏlci*; PS ipv. 2/3 sg. **neˈsai̯* [122]> CS **nesì*; PS dat. sg. **ˌrankāi̯* > CS **rǫ̑cě*; PS nom.-acc. du. **ˌrankāi̯* > CS **rǫ̑cě*; PS nom.-acc. du. **ˌsutāi̯* > CS **sъ̑tě* etc.[123] The long desinential syllable of PS loc. sg. **ˌu̯ilkāi̯* > CS **vȏlcě* is analogical to the long desinences of all other stems: *ā*-stem **-āi̯*, *i*-stem **-ēi̯*, *u*-stem **-āu̯*. When the development took place, PIE *o*-stem dat. sg. **-oei̯* > PBS **-ōi̯* had already yielded PS **-āu̯* (CS **-u*), and PIE *o*-stem instr. pl. **-ōi̯s* > PBS **-ōi̯s* had yielded PS **-ū* (CS **-y*).

We may assume the following types of desinences in the Indo-European proto-language, presented according to their phonological structure (**V* represents **V̄* and **V̌*):

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119. See e.g. Bräuer (1961: 104).
120. Commenting these forms, Hirt wonders: "Wie man angesichts einer solchen Tatsache diese Ansicht verteidigen kann, ist mir unerfindlich." (1929: 147); see also Aitzetmüller (1978: 27–28); and the references of Hock (2005: 17).
121. Holzer (1980: 17), whose explanations of some of the forms diverge from the ones presented here; cf. Kortlandt's rejection of Holzer's view and his own assumption of a development of **-oi̯s* to CS **-i* (1983b: 177–178).
122. For the short diphthong of this desinence, see Ch. 4 § 3.2, "Optative"
123. For the prehistory of these forms see the relevant parts of Ch. 4 § 3.1 and § 3.2.

1	Short	*-V̌C₀#*	PIE **long-ós* (nom. sg.)
2	Hiatal (non-lar.)	*-VVC₀#*	PIE **long-óes* (nom. pl.)
3	Hiatal (laryngeal)	*-VhVC₀#*	PIE **gʰolə̯u̯-áh₂as* (nom. pl.)
4	Long (non-lar.)	*-V̄C₀#*	PIE **dʰugə₂t-ér̀* (nom. sg.)
5	Long (laryngeal)	*-V(i̯)hC₀#*	PIE **gʰolə̯u̯-áh₂* (nom. sg.)
6	Disyllabic	*-V(h)C₁V(h)C₀#*	PIE **long-ómos* (dat. pl.)

4.3. Paradigmatic accent

The free accent of Proto-Indo-European played an important role in the morphological system. The paradigmatic accentuation system of the proto-language is established on the basis of Vedic, Greek and Germanic evidence and internal reconstruction. The correspondences between these four sources are significant enough to allow us to regard the obtained Proto-Indo-European system as a reliable reconstruction. Where Vedic and Greek disagree about the accentuation of a given word-form, Germanic often confirms the Vedic variant. In accordance with the general purpose of this chapter, which aims at a reconstruction of the Proto-Indo-European prosodic system and paradigmatic accent based on non-Balto-Slavic languages, material from Baltic and Slavic is not considered. I shall examine the paradigmatic accent from a synchronic Proto-Indo-European point of view. It is not the purpose of this subsection to account for the pre-Proto-Indo-European processes that gave rise to the accent alternations found in the proto-language. Categories that are not relevant to the reconstruction of the prehistory of the Balto-Slavic accentual system are not considered.

The nominal and verbal paradigmatic accentuation systems of Proto-Indo-European are usually described with the morphological terms invented by Pedersen and elaborated by Kuiper, Hoffmann and others.[124] According to this classification, the most important accentuation types of the proto-language are the following:[125]

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124. See Szemerényi (1970 [1990]: 170–171) with references and historical remarks; (1985: 16–17); Eichner (1973: 91 n. 33); Schindler (1975: 262–264); Rix (1976: 122–124); Rasmussen (1978 [1999]: 62–64; 1996 [1999]); Harðarson (1993: 25–26); Sihler (1995: 278–279); Meier-Brügger (2000: 188–201); Fortson (2004: 107–110).
125. At least from a synchronic, accentual point of view, I consider it justified to include thematic formations in the table; but cf. Rasmussen (1978 [1999]: 62–63).

1 ACROSTATIC (immobile root-accentuation):
root noun nom. sg. **nókʷt-s*, gen. **nékʷt-s*;
ā-stem nom. sg. **u̯ĺ̥hn-ah₂*, gen. **u̯ĺ̥hn-ah₂-s*;
athem. prs. 3 sg. **stḗu̯-ti*, 3 pl. **stéu̯-n̥ti*;
2 PROTEROKINETIC (accent on root and suffix):
r-stem nom. sg. **dóh₃-tōr*, gen. **də₃-tér-(o)s*;
3 AMPHIKINETIC (accent on root and ending):
h₂-stem nom. sg. **pónt-ōh₂-s*, gen. **pn̥t-h₂-ós*;
root noun nom. sg. **h₂nḗr*, gen. **h₂n̥r-ós*;
athem. prs. 3 sg. **gʷʰén-ti*, 3 pl. **gʷʰn-énti*;
4 HYSTEROKINETIC (accent on suffix and ending):
r-stem nom. sg. **dʰugə₂-tḗr*, gen. **dʰugə₂-tr-ós*;
nu-prs. 3 sg. **h₃r̥-néu̯-ti*, 3 pl. **h₃r̥-nu̯-énti*;
5 MESOSTATIC (immobile suffixal accentuation):
ā-stem nom. sg. **bʰug-áh₂*, gen. **bʰug-áh₂-s*;
them. prs. 3 sg. **sup-é-ti*, 3 pl. **sup-ó-nti*.

This morphologically based system is a useful tool in the description of the Proto-Indo-European accent and its relation to the ablaut grades of root, suffix and ending. Above all it gives us insight in the pre-Proto-Indo-European mechanisms that constitute the basis of the morphological system of the proto-language. For the last stage of Proto-Indo-European, however, a description of the paradigmatic accent might perhaps be more appropriately based on phonological criteria. For instance, the presumably secondary accentuation of the instrumental plural of hysterokinetic stems shown by VED *duhitṛ́bhiḥ* was determined by a columnisation of the accent based on the phonological appearance of the forms of the paradigm. While the morphological classification given above is dominated by mobile ("kinetic") paradigms, the balance tips in favour of immobility if we take a phonological point of view. When we consider the position of the accent with respect to the beginning of the word, only the proterokinetic and amphikinetic paradigms are accentually mobile; the former of these paradigms, moreover, is vanishing already in the proto-language.[126] From a phonological point of view we have the following accentual patterns:

126. Cf. Pedersen (1926: 25); Eichner (1974: 30).

1 COLUMNAR accentuation (accent on the same syllable counting from the beginning of the word):
   a initial accentuation:
      root noun nom. sg. **nókʷt-s*, gen. **nékʷt-s*;
      ā-stem nom. sg. **u̯l̥̂hn-ah₂*, gen. **u̯l̥̂hn-ah₂-s*;
      root prs. 3 sg. **stḗu̯-ti*, 3 pl. **stéu̯-n̥ti*;
      root prs. 3 sg. **gʷʰén-ti*, 3 pl. **gʷʰn̥-énti*;
   b non-initial accentuation:
      r-stem nom. sg. **dʰugə₂-tḗr*, gen. **dʰugə₂-tr-ós*;
      ā-stem nom. sg. **bʰug-áh₂*, gen. **bʰug-áh₂-s*;
      them. prs. 3 sg. **sup-é-ti*, 3 pl. **sup-ó-nti*;
      nu-prs. 3 sg. **h₃r̥̂-néu̯-ti*, 3 pl. **h₃r̥̂-nu̯-énti*;
2 MOBILE accentuation (initial and non-initial accentuation):
      r-stem nom. sg. **dóh₃-tōr*, gen. **də₃-tér-(o)s*;
      h₂-stem nom. sg. **pónt-ōh₂-s*, gen. **pn̥t-h₂-ós*;
      root noun nom. sg. **h₂nḗr*, gen. **h₂n̥r-ós*.

Sometimes a root displays different ablaut grades in different languages, for instance ONOR *svefn* vs. ARM *kʿun* vs. OCS *sъnъ*, GK *ὕπνος* with *e*-, *o*- and zero grade respectively. These cases have been taken as evidence for original paradigmatic mobility.[127] The value of different ablaut grades of a root for the reconstruction of paradigmatic mobility is, however, dependent on the assumption that the relationship between ablaut grade and accent was unambiguous in the proto-language, which is not the case; see § 4.1 above. Other, more plausible explanations have been advanced for alternations of this type.[128] In the following I do not regard the presence of ablaut alternations in the root of a word in one or more languages as an indication of paradigmatic mobility in that word in the proto-language.

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127. "[W]ir [haben] hier und in allen derartigen fällen auch für die *a₂*- [i.e. *o*-] und *ā*-declination einen grundsprachlichen wechsel der accentlagerung und vielleicht dazu der accentqualität innerhalb eines und desselben paradigmas vorauszusetzen" (Osthoff 1879: 12, sentence emphasised in original).
128. The existence of an old heteroclitic (cf. LA *sopor*) would explain the ablaut alternations of this word, see Schindler (1966); Mayrhofer (1986–2001, 2: 792); Olsen (1999: 29); but cf. Schaffner (2001: 95 fn. 4, 103); Rix (1976: 136) assumes pre-Proto-Indo-European paradigmatic accent mobility, "noch in der Grundsprache beseitigt", to explain cases like this; cf. Stang (1957 [1965]: 177).

Nominal system

In the masculine *o*-stems, Vedic and Greek agree in not showing any traces of paradigmatic mobility. The distribution of **-e-* and **-o-* in the thematic suffix was not dependent on the accent but on a following segment, **-e-* and **-o-* appearing before an unvoiced and voiced segment respectively.[129] The evidence for accentual mobility in masculine *o*-stems comes mainly from Germanic where we often find accentual doublets of the same word, e.g. PGE **hanhista-* vs. **hangista-*. Discrepancies between different language branches, e.g. VED *ájra-* vs. GK *ἀγρός*, are less significant. It has been proposed to explain the existence of such accent doublets by assuming paradigmatic mobility in at least some of the masculine *o*-stems in Proto-Indo-European.[130] However, considering the fact that the evidence of all other languages than Germanic points to immobility in the masculine *o*-stems, it seems unjustified to assume original paradigmatic mobility just on the basis of the Germanic accentual doublets. The doublets may have arisen through one or more of the four developments outlined in § 3.3 above, "Nominal system". The Proto-Indo-European state of affairs is reflected directly in the Vedic and Greek columnar accentuation of these stems.[131]

In the neuter *o*-stems the situation is somewhat different. While in Vedic and Greek no paradigmatic mobility is found in these stems, there is reason to believe that the Proto-Indo-European neuter *o*-stems had a suppletive paradigm, probably originating in a derivational relationship, characterised by full grade and root-accentuation in the singular vs. zero grade and desinential accentuation in the plural, e.g. nom.-acc. sg. **u̯érdʰom* vs. nom.-

129. Rasmussen (1989a: 139).

130. Original mobility in the *o*-stems is assumed by Osthoff (1879: 11–12); Helm (1949: 265); Stang (1957 [1965]: 178; 1966a: 306; 1969 [1970]); see also Noreen (1880: 431); cf. Hirt (1929: 262).

131. The same conclusion is reached by the majority of scholars, e.g. Meillet (1914c: 79); van Wijk (1923 [1958]: 70–72); Hirt (1929: 262); Pedersen (1933: 21–23); Makaev (1963: 151–152); Eichner (1973: 91 fn. 33; 1974: 30 fn. 13); Rix (1976: 136); Harðarson (1993: 34 with fn. 26); Schaffner (2001: 95–96); Sverdrup (1913: 113) assumes that the masculine *o*- and the *ā*-stems were immobile in Proto-Indo-European but acquired paradigmatic mobility in pre-Proto-Germanic by analogy with the *i*-, *u*- and *C*-stems. Micklesen's view (1992: 287) that the accent was on the final syllable of the desinence in the *o*-stems (e.g. PIE loc. pl. **ĝʰombʰoi̯sú*) remains, to my knowledge, isolated.

acc. pl. **u̯r̥dʰáh₂*.[132] How widespread this type was at the last stage of the proto-language is difficult to say. The positive data pointing to Proto-Indo-European accentual mobility are, apart from the different ablaut grades of the root found in various languages, virtually limited to the indirect evidence of the Germanic Verner doublets. The fact that each ablaut grade was correlated with columnar accentuation in the paradigm makes it reasonable to assume that when one ablaut variant or the other was generalised in the paradigm, the accompanying accentuation also was. The possibility should be considered of deriving the paradigmatic mobility of the Proto-Balto-Slavic neuters from a desinentially accented paradigm, corresponding to the state of affairs found in Vedic and Greek. If the less attractive view is accepted that the original paradigmatic mobility of the neuters did survive in Balto-Slavic, for our purposes it is important to note that the mobility was of a quite different kind than that of the masculines and feminines.

The *ā*-stems do not display paradigmatic mobility in Vedic or Greek, where they invariably have columnar accentuation. From the point of view of internal reconstruction, there are no traces of ablaut alternations in the stem-suffix PIE **-ah₂-*, at least according to the *communis opinio*,[133] and thus no indications of pre-Proto-Indo-European accent alternations. Only the Verner doublets of Germanic seem to point to former paradigmatic mobility,[134] but in view of the unanimous evidence of extra-Germanic sources the doublets are more likely to have their origin in developments like those mentioned above (§ 3.3, "Nominal system") than to reflect mobile *ā*-stems of Proto-Indo-European age.[135]

In the *i*- and *u*-stems, whose inflexion was almost parallel in the proto-language, the stem-suffix shows an alternation **-i-* vs. **-e̯i̯-* in the former

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132. Eichner (1974: 30–31 fn. 13; 1985: 141 fn. 46); Klingenschmitt (1975: 161 fn. 20); Harðarson (1987: 90; 1993: 34 fn. 26); Oettinger (1994: 212–213); Schaffner (2001: 106–113); see also Hirt (1929: 243–246); Stang (1957 [1965]: 177); but cf. Pedersen (1905: 333–334).
133. See Beekes (1995: 182–183) for an alternative view.
134. Original mobility in the *ā*-stems is assumed by Osthoff (1879: 11–12); Meillet (1903a [1973]: 320–321; 1918); Stang (1957 [1965]: 178; 1969 [1970]); see also Noreen (1880: 431). *Pace* Schaffner (2001: 366 fn. 7), Helm (1949) does not express his view on original mobility in the *ā*-stems.
135. The Proto-Indo-European *ā*-stems are regarded as immobile e.g. by van Wijk (1923 [1958]: 70–71); Pedersen (1933: 21); Hirt (1929: 257–260); Makaev (1963: 175); Eichner (1974: 30 with fn. 13); Rix (1976: 130); Schaffner (2001: 365); as in the case of the masculine *o*-stems, Sverdrup (1913: 113) assumes that the *ā*-stems had become analogically mobile in pre-Proto-Germanic.

(e.g. PIE nom. sg. *-*i*-*s* vs. gen. *-*e̯i*-*s*), and *-*u*- vs. *-*e̯u*- in the latter (e.g. PIE nom. sg. *-*u*-*s* vs. gen. *-*e̯u*-*s*). The different ablaut grades of the suffix indicate that at least some of these stems once displayed accent alternations. Vedic and Greek, however, agree in showing columnar accent in all words belonging to these stem-classes. Indian *ti*-stem accent doublets seem to belong to different chronological layers. In Greek the accent has been generalised in the *i*- and *u*-stems and is in any case columnar. Thus only the Germanic Verner doublets indicate that the *i*- and *u*-stems were mobile in the proto-language. In contrast to the *o*- and *ā*-stems, however, this assumption is supported by the alternating ablaut grades of the stem-suffix.

While for a pre-stage of Proto-Indo-European there seems to be general acceptance of mobility in the *i*- and *u*-stems, opinions diverge on the question if the mobility can be reconstructed also for the last stage of the proto-language. Scholars like Meillet, Stang and others, who assume mobility in the Proto-Indo-European *o*- and/or *ā*-stems, also reconstruct accentual mobility in the *i*- and *u*-stems.[136] The view that the Proto-Indo-European *i*- and *u*-stems were still mobile in the proto-language is supported e.g. by Kuiper.[137] Scholars like Pedersen and Vaillant, on the other hand, have expressed themselves decisively against living paradigmatic mobility in these stems.[138] It seems most plausible to assume that in the late Indo-European point of departure for the Balto-Slavic accentuation system, the accentuation of the *i*- and *u*-stems had been columnised, a stage which is directly reflected in Vedic and Greek.[139]

As for the accentuation of the disyllabic desinences of the desinentially accented paradigms, Vedic and Greek agree in accenting the first desinential syllable, cf. VED nom. pl. *matáyaḥ*, *sūnávaḥ*, instr. *matíbhiḥ*, *sūnúbhiḥ*,

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136. Meillet (1903a [1973]: 317; 1914c: 74); Stang (1957 [1965]: 177–178); thus also Helm (1949: 265).
137. Kuiper (1942 [1997]: 443); thus also Sverdrup (1913: 113); Bonfante (1931a: 169); Sadnik (1959: 57); Schaffner (2001: 439–440, 488–491); hesitatingly, Hirt (1929: 251, 254).
138. Vaillant (1958, 1: 324–325; Pedersen (1933: 21–22); thus also van Wijk (1923 [1958]: 70); similarly Makaev (1963: 188, 217–218).
139. Thus also Kortlandt (1994 [2002]: 3): "Loss of PIE. accentual mobility, of which there is no trace outside the nominal flexion of the consonant stems"; cf. (1977: 320; 1978b: 275 fn. 5; 2006a: 359); Schaffner (2001: 442–446); cf. Sadnik (1959: 57–62); Rix (1976: 149): "Die Kolumnalisierung hat, mit der Trennung von Wortakzent und Ablautstufe […], schon grundsprachlich begonnen: a[lt] i[ndisch] *svādús svādós* wie gr[iechisch] *ἡδύς ἡδέος*. Das Phänomen bedarf noch weiterer Klärung.".

GK gen. sg. *ἡδέος*, nom. pl. *ἡδεῖς*. As we have seen in § 1.3 above, the remodelled Vedic genitive plural forms *matīnā́m*, *sūnūnā́m* have probably replaced forms with a monosyllabic desinence. The accent paradigms of the Proto-Indo-European *i*- and *u*-stems may thus be reconstructed with columnar accentuation like the *o*- and *ā*-stems.[140]

Polysyllabic consonant stems of the hysterokinetic type have columnar accentuation in Vedic (except the remodelled gen. pl. *duhitṛ̥ṇā́m* which has replaced **duhitrā́m*, see § 1.3 above) and Greek (except the secondary nominative singular forms of *θυγάτηρ* and *μήτηρ*). The alternating ablaut grades of the suffixes point to the existence of paradigmatic mobility at least at a prestage of Proto-Indo-European. The Verner doublets found in some Germanic *n*-stems may indicate survival of mobile accentuation of the proterokinetic type in the individual Indo-European language branches. This paradigm is also represented by GK *ī*-stem nom. sg. *ὄργυια*, gen. *ὀργυιᾶς* etc., reflecting the type PIE nom. sg. **déi̯u̯ih₂*, gen. **diu̯i̯áh₂s*.[141] Traces of the accent alternations of the amphikinetic paradigm are preserved in VED nom. sg. *pánthāḥ*, acc. *pánthām*, gen. *patháḥ*, loc. pl. *pathíṣu*. As for the desinentially accented forms of the polysyllabic consonant stems, VED dat.-abl. pl. *duhitṛ́bhyaḥ*, instr. *duhitṛ́bhiḥ*, loc. *duhitṛ́ṣu*, GK dat. pl. *θυγατράσι* etc. point to accent on the first syllable of the desinence, i.e. PIE **dʰugə₂-tŕ̥su* etc., like in the vowel stems.[142] We may conclude that the accentuation of the hysterokinetic consonant stems was columnar in the proto-language. The proterokinetic and amphikinetic types still displayed accent alternations that were preserved in at least some words in post-Proto-Indo-European.

Most Vedic and Greek monosyllabic consonant stems have mobile accentuation, e.g. VED nom. sg. *pā́t*, acc. *pā́dam*, gen.-abl. *padáḥ*, loc. pl. *patsú*; GK nom. sg. *πούς*, acc. *πόδα*, gen. *ποδός*, dat. pl. *ποσί*. In accordance with

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140. Some scholars reconstruct certain disyllabic desinences with final accentuation, cf. Debrunner and Wackernagel (1930: 17).
141. Rasmussen (1978 [1999]: 38); Schaffner (2001: 85); cf. Eichner (1974: 28–29).
142. Like in the *i*- and *u*-stems, original final accentuation of certain disyllabic desinences is assumed by some scholars, e.g. Hirt, who proposed a Vedic "Tonverschiebungsgesetz" to explain the penultimate accentuation of forms like *duhitṛ́ṣu* (1929: 188–191, 230); the law was accepted by Bonfante (1931a: 168–169); in GK *θυγατράσι* the possibility exists of a retraction of the accent from the final syllable by Wheeler's Law, for which see Collinge (1985 [1996]: 221–223) with references; cf. Debrunner and Wackernagel (1930: 17); Meier-Brügger (1992: 288), arguing for accent on the first syllable of the desinence in forms like this before the operation of Wheeler's Law.

the mobile paradigm of the word for 'tooth', VED nom. sg. *dán*, acc. *dántam*, instr. *datā́*, we find reflexes of Verner alternants in Germanic.[143] The correspondences between the accent paradigms of Vedic and Greek monosyllabic consonant stems together with the evidence of Germanic leave no doubt that we are dealing with Proto-Indo-European paradigmatic mobility.

Given the fact that a number of original consonant stems have preserved traces of consonantal inflexion in both Baltic and Slavic, e.g. LI *dantìs*, *šuõ* from PIE **h₁dont-*, **ḱu̯on-*,[144] it is possible that the monosyllabic stems had retained their original accentual mobility in Proto-Balto-Slavic. As was stated in Ch. 1 § 5, however, I do not think that the mobility of these stems played any significant role in the development of paradigmatic mobility in the Balto-Slavic vowel stems.

The following table shows the declension of the desinentially accented vowel stems in Proto-Indo-European; cf. the relevant parts of Ch. 4 § 3.1.

Table 6. Desinentially accented vowel stems in Proto-Indo-European

	o-stem	*ā*-stem	*i*-stem	*u*-stem
		SINGULAR		
nom.	**longós/*ḱm̥tóm*	**gʰoləu̯áh₂*	**mn̥tís*	**sodús*
acc.	**longóm/*ḱm̥tóm*	**gʰoləu̯áh₂m̥*, **-m*	**mn̥tím*	**sodúm*
gen.	**longó(h)at*	**gʰoləu̯áh₂s*	**mn̥téi̯s*	**sodéu̯s*
dat.	**longóei̯*	**gʰoləu̯áh₂ai̯*	**mn̥téi̯(ei̯)*	**sodéu̯ei̯*
instr.	**longéh₁*,**-óeh₁*	**gʰoləu̯áh₂(a)h₁*	**mn̥tíh₁*,**-i̯éh₁*	**sodúh₁*,**-u̯éh₁*
loc.	**longói̯*	**gʰoləu̯áh₂i*, **-i̯*	**mn̥téi̯*	**sodéu̯*,**-éu̯i*
		DUAL		
n.-a.	**longóh*,**-ṓ/*ḱm̥tói̯ih₁*	**gʰoləu̯áh₂ih₁*	**mn̥tíh₁*	**sodúh₁*
		PLURAL		
nom.	*"*longói̯"/*ḱm̥táh₂*	**gʰoləu̯áh₂as*	**mn̥téi̯es*	**sodéu̯es*
acc.	**longóns/*ḱm̥táh₂*	**gʰoləu̯áh₂n̥s*	**mn̥tíns*	**sodúns*
gen.	**longóom*	**gʰoləu̯áh₂om*	**mn̥téi̯om*	**sodéu̯om*
dat.	**longómos*	**gʰoləu̯áh₂mos*	**mn̥tímos*	**sodúmos*
instr.	**longṓi̯s*	**gʰoləu̯áh₂bʰi(h)s*	**mn̥tíbʰi(h)s*	**sodúbʰi(h)s*
loc.	**longói̯su*	**gʰoləu̯áh₂su*	**mn̥tísu*	**sodúsu*

Other forms of relevance to the study of the development of the Proto-Balto-Slavic paradigmatic accent mobility are *ī*-stem nom. sg. **su̯ah₂du̯íh₂*; *ūs*-stem nom. sg. **su̯eḱrúhs*; *r*-stem nom. sg. **dʰugə₂tḗr*; *n*-stem nom. sg. **h₂orə₃mḗn*.

143. Schaffner (2001: 625–631); cf. Griepentrog (1995: 479).
144. Stang (1966a: 223); cf. Larsson (2001: 239–240).

Verbal system

The Proto-Indo-European verbal accentuation system is more difficult to reconstruct than the nominal system. In Vedic, verbal forms are accented only under certain syntactic conditions; in Greek, the evidence is limited to infinite verbal forms; and Germanic provides only indirect evidence through Verner's Law. Since the evidence of Vedic, Greek, Germanic and internal reconstruction of Proto-Indo-European often points in the same direction, it is nevertheless possible to reconstruct at least part of the verbal acccentuation system of the proto-language.

The circumstance that Vedic finite verbs are accented only under certain syntactic conditions but unaccented under others seems to be confirmed by the combined evidence of Greek and Germanic. In Greek, finite verbs apparently have passed through a stage where they were unaccented; in Germanic, the evidence of Verner's Law often confirms the accentuation of the Vedic accented verbs. We may therefore assume that Proto-Indo-European had a verbal accentuation system similar to that of Vedic with both accented and unaccented forms. We do not know if the precise distribution of accented and unaccented verbs in the proto-language was identical to that of Vedic.[145]

In Vedic, thematic presents are accented either on the root or on the suffix. In the former case the root has full grade, e.g. 3 sg. *bhárati*, in the latter case it has zero grade, e.g. 3 sg. *tudáti*. Germanic generally confirms this relationship between ablaut grade of the root and accentuation, providing no significant arguments against paradigmatic immobility in these stems. In Greek, the infinite forms point to root-accentuation in the present, regardless of the ablaut grade of the root, e.g. prs. ptc. *φέρων*, *γλύφων*, which is probably the result of a secondary generalisation. Hence it is reasonable to assume that thematic verbs had columnar accentuation in the proto-language;[146] in verbs with a full-grade root the accent was on the root, e.g. PIE 3 sg. **bʰéreti*; in verbs with a zero-grade root the accent was on the suffix, e.g. PIE 3 sg. **(s)tudéti*.

Judging from the ablaut alternations of the root and the accentuation attested in Vedic (Greek and Germanic offer no backing here), athematic presents were mobile in the proto-language: in the singular the root had full grade and was accented, in the plural the root was in zero grade and the

145. Cf. Hirt (1929: 294).

146. This is the standpoint taken by the majority of scholars; but note that Proto-Indo-European paradigmatic mobility is assumed for thematic verbs by Stang (1957 [1965]: 129, 178–179) and Kim (2002: 203–204).

desinence was accented. For instance, the singular and plural forms of the verb 'to go' were PIE 1 sg. **$h_1$éi̯mi*, 2 sg. **$h_1$éi̯si*, 3 sg. **$h_1$éi̯ti*; 1 pl. **$h_1$imós*, 2 pl. **$h_1$ité*, 3 pl. **h_1i̯énti*. The possibility should be considered if the few athematic verbs that were preserved in Baltic and Slavic retained the Proto-Indo-European accentual mobility. I find it hard to believe that they would exert influence on the thematic presents in such a profound manner as the introduction of paradigmatic accent mobility would be.[147]

The accentuation of the Proto-Indo-European imperfect was probably the same as that of the present. As for the aorist, the Slavic 2 and 3 singular thematic aorists partly represent thematised root aorist, partly old imperfects.[148] Given the fact that most thematic aorists found in Indo-European languages are probably the result of secondary thematisations,[149] a reconstruction of their original accentuation does not rest on firm ground. What may be observed is that in the early Proto-Indo-European dialects where the thematic aorists were productive they seem to have had zero grade of the root and suffixal accentuation, e.g. VED aor. inj. 3 sg. *vidát*, GK aor. inf. *λαβεῖν*.

Sigmatic aorists survive in an original form in Old Church Slavonic in the 1 singular and in the dual and plural; in Baltic they have left no traces. Since the root alternated between lengthened grade and full grade in the sigmatic aorist, we may assume that it was accented in all forms. This seems to be confirmed by Vedic.

The following verbal forms are relevant to the study of the Balto-Slavic paradigmatic accent mobility:

Table 7. Relevant Proto-Indo-European verbal forms

	THEM. PRS.	OPT.	PRS. INJ.	SIGM. AOR.
		SINGULAR		
1 sg.	**supóh*	**supói̯h$_1$m̥*	**supóm*	**mḗnsm̥*
2 sg.	**supési*	**supói̯h$_1$s*	**supés*	**mḗns*
3 sg.	**supéti*	**supói̯h$_1$t*	**supét*	**mḗnst*
		PLURAL		
1 pl.	**supómos*	**supói̯h$_1$me*	**supóme*	**ménsme*
2 pl.	**supéte*	**supói̯h$_1$te*	**supéte*	**ménste*
3 pl.	**supónti*	**supói̯h$_1$n̥t*	**supónt*	**ménsn̥t*

147. As stated in the introductory chapter, such a process is fundamentally different from the one that led to the introduction af the athematic 1 sg. desinence CS **-mь* in the thematic present in various Slavic languages.

148. Stang (1942: 63); cf. Aitzetmüller (1978: 184).

149. Watkins (1969: 63–64); Szemerényi (1970 [1990]: 303–304).

Chapter 3
Balto-Slavic

This chapter deals with the Baltic and Slavic languages and their reconstructed common ancestor, Proto-Balto-Slavic (for a brief discussion of which see Ch. 1 § 3, "Periodisation"). For each of the attested or reconstructed languages treated separately in this chapter – Lithuanian, Latvian, Old Prussian, Proto-Slavic and Proto-Balto-Slavic – the prosodic systems and systems of paradigmatic accentuation are described synchronically and the most important prosodic developments with respect to earlier language stages are analysed diachronically. I shall try to give as clear an overview as possible of (1) the Proto-Balto-Slavic prosodic system and the system of paradigmatic accentuation, and the reflexes of these systems in the Balto-Slavic daughter languages; and of (2) the relationship between the Proto-Indo-European and Proto-Balto-Slavic prosodic systems. These maneuvers are carried out in order to provide the most favourable conditions for the comparison of the Proto-Indo-European and Proto-Balto-Slavic systems of paradigmatic accentuation that will be undertaken in Ch. 4.

Of the three Baltic languages, only Lithuanian provides direct and unequivocal evidence of paradigmatic mobility. While theoretically Old Prussian might provide additional information about the Proto-Baltic accentuation system, the curves of the Proto-Baltic mobile paradigms are virtually reconstructed on the basis of Lithuanian material only. It is thus commonplace – and inevitable – to compare the Lithuanian paradigmatic accent directly with that of the reconstructed Slavic proto-language. Primarily for this reason I have chosen not to include a section on Proto-Baltic.

The Slavic languages constitute a very heterogenenous group from the point of view of prosodic typology. There are languages with free accent and no distinctive quantity or tones (Russian, Ukrainian, Belorussian, Bulgarian); languages with free accent, distinctive quantity and no distinctive tones (Slovincian); languages with free or restricted accent, distinctive quantity and distinctive tones (Štokavian, Čakavian, Slovene); languages with fixed accent, distinctive quantity and no distinctive tones (Czech, Slovak); and languages with fixed accent and no distinctive quantity or tones (Polish, Upper Sorbian, Lower Sorbian, Macedonian). The value of these languages for the reconstruction of the Proto-Slavic prosody and paradigmatic accentuation also varies considerably. Nonetheless, there is general agreement on

the reconstruction of the accentuation of most specific forms of the Proto-Slavic morphological system.

1. Lithuanian

As the only living Baltic language with free accent, Lithuanian takes a key position in the reconstruction of the Proto-Balto-Slavic prosodic system and the system of paradigmatic accentuation.

1.1. Prosodic system

Lithuanian has a free accent and distinctive quantity. In long accented syllables there are two distinctive syllabic tones, a falling tone (acute) and a rising tone (circumflex), e.g. *týrė* '(he) explored' vs. *tỹrė* 'mush'. In dictionaries and grammars of Lithuanian, three diacritical marks are used to indicate the accent of the word and the tone and quantity of the accented syllable. The first or only segment of a long accented syllable with a fallling tone is marked with an acute accent (*ár*, *ó*),[1] unless the first element is *i* or *u* followed by a resonant, in which case it is marked with a grave accent (*ìr*). The second or only element of a long accented syllable with a rising tone is marked with a circumflex accent (*ar̃*, *õ*). Short accented syllables are marked with a grave accent (*i*). In final position the tonal distinction is almost neutralised, the acute being virtually absent in this position; note, however, that there are a few minimal pairs like ipv. 2 sg. *šáuk* 'shoot!' vs. *šaũk* 'shout!' with recent loss of a final syllable. The historical reason for the absence of the acute tone in final position is Leskien's Law (see § 1.3 below). Lithuanian acute and circumflex syllables reflect Proto-Balto-Slavic acute and circumflex syllables respectively (see § 5.1 below), except in cases of *métatonie douce*, i.e. the change of an acute to a circumflex tone in a morpheme. Since the problem of metatony does not interfere with that of paradigmatic mobility, I shall not treat it here. There seems to be general agreement that the *métatonie douce* is a post-Proto-Balto-Slavic phenomenon.[2]

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1. In the following, *a* represents a vowel followed by a tautosyllabic resonant; *o* represents a long vowel; *i* represents *i* and *u*; *r* represents a resonant.
2. Larsson (2004a: 316–317 fn. 29 and pers. comm.) finds traces of *métatonie douce* in all Baltic languages, including Old Prussian; see also Stang (1966b

Traces of unaccented word-forms

As we shall see in § 5.1 below, the Balto-Slavic proto-language possessed a class of phonologically unaccented word-forms; from a morphological point of view, these word-forms alternated with desinentially accented forms in the mobile paradigms. In Lithuanian the unaccented word-forms have generally received initial accentuation, merging prosodically with word-forms with original root-accentuation, e.g. PBS acc. sg. **ˌgāˀlu̯ān* > LI *gálvą* AP 3 like PBS **ˈu̯āˀrnān* > LI *várną* AP 1; and PBS acc. sg. **ˌalgān* > LI *algą̃* AP 4 like PBS **ˈalkan* > LI *alką̃* AP 2. This development is comparable to the process observable in the history of Russian, where the class of unaccented word-forms, still vigorous in Old Russian, has been reduced to a limited set of fixed expressions in modern Russian. While a class of unaccented word-forms is not traditionally assumed at pre-stages of Lithuanian, I agree with Garde and others that certain facts point to its former existence.[3] Note that the unaccented word-forms had been reaccented when Saussure's Law operated in Lithuanian (see § 1.3 below) since this law affected both originally initially accented and unaccented word-forms. This is an important difference to Dybo's Law in Slavic (see § 4.3 below).

One piece of evidence is constituted by the accentuation of the secondary case forms containing the original postpositions **n*(*a*) and **p*(*i*) in old and dialectal Lithuanian. If the form to which the postposition is added has root-accentuation in Lithuanian, we find an interesting accentual distribution of the secondary case forms: while immobile words (AP 1 and 2) show preservation of the initial accentuation, in mobile words (AP 3 and 4) the accent falls on the syllable preceding the postposition, e.g. ill. sg. *líepon*, pl. *líeposna* from acc. sg. *líepą*, pl. *líepas* AP 1; but *galvoñ*, *galvósna* from *gálvą*, *gálvas* AP 3. Correspondingly, all. sg. *výrop* from gen. sg. *výro* AP 1; but *darbóp* from *dárbo* AP 3. This distribution has been taken as an indication that at least some of the words with mobile accentuation originally had columnar desinential accentuation, which was preserved in the secondary

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[1970]: 220); other authors restrict the phenomenon to East Baltic, e.g. Kortlandt (1974: 304); Rasmussen (1992a [1999]: 548); Derksen (1996: 377).

3. Garde (1976, 1: 189–191, 2: 438–439 nn. 264–266); Dybo (1981: 54); Young (1994: 106); cf. Lehfeldt (1993 [2001]: 33–36); Kim (2002: 123–124); Kuryłowicz (1968: 136); the existence of unaccented word-forms at a pre-stage of Lithuanian is decidedly rejected by Kortlandt (1978a: 74–76).

case forms.[4] Alternatively, it is possible to interpret the accentuation of the secondary case forms in the light of the hypothesis that the prosodic system of a pre-stage of Lithuanian included unaccented word-forms. According to this view, we may directly compare the relationship between ill. sg. *galvoñ* and acc. sg. *gálvą* with that of RU adv. *zimús'* and acc. sg. *zímu* (see § 4.1 below),[5] i.e. the accentuation of *galvoñ* etc. may be the result of the same prosodic rules that determine the accentuation of unaccented words in combination with clitics in Proto-Slavic. As we shall see in Ch. 4 § 2.3, diachroncally these rules reflect the effects of the Mobility Law.

In Lithuanian prefixed verbs, the accent is on the verbal root if the verb was originally immobile, but on the last or only verbal prefix if the verb was originally mobile. Old and dialectal Lithuanian also preserves a distinction between root-accentuation in the present participle of immobile verbs and desinential accentuation in mobile verbs, e.g. prs. 3 ps. *nešaũkia*, ptc. *šaũkiąs* from *šaũkti* vs. *nèveda*, *vedą̃s* from *vèsti*.[6] The accent on the prefix in certain Lithuanian verbs may be related to accentuations of the type ŠTK aor. 2./3 sg. *ìstrēse*, Old RU prs. 1 sg. *pótrjasu*;[7] in this case it is another reminiscence of the former existence of unaccented word-forms in Lithuanian.[8] It has been noted that the absence of lengthening of the first *e* of *nèveda* as opposed to the lengthening of the *e* of *vẽda* points to a chronological difference between the reaccentuation of these categories. Garde assumes that the reaccentuation of prefixed forms like *nèveda* took place before the reaccentuation of unprefixed forms like *vẽda*, the latter reaccentuation being accompanied by a lengthening of the vowel.[9] I am more inclined to assume the opposite chronology.[10] As Rasmussen has pointed out,[11] the short vowel of the verbal prefixes would be regular in tmesis since in final position accented **e* and **a* were not lengthened in Lithuanian. Note also that certain Žemaitian dialects display lengthening of the vowel of verbal prefixes, i.e. *pã-*, *nẽ-* etc.[12]

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4. Van Wijk (1923 [1958]: 73–74); Stang (1957 [1965]: 64–67; 1966a: 228–232, 290–292) with references.
5. Garde (1976, 1: 9, 20); Kim (2002: 124).
6. Stang (1957 [1965]: 155–157; 1966a: 449–451).
7. Stang (1966a: 450–451); this suggestion is rejected by Kortlandt (1978a: 74–75); see also Vaillant (1950: 228). The Old Russian form is quoted from Stang (1957 [1965]: 109).
8. Garde (1976, 1: 190).
9. Garde (1976, 1: 190, 2: 439 n. 265).
10. Cf. Kortlandt (1978a: 74–75).
11. Rasmussen (1992b [1999]: 479).
12. Senn (1966: 247).

Nieminen's Law

Most scholars who assume that the Balto-Slavic accentual mobility of vowel stems has arisen by an imitation of the mobility of the consonant stems expect the nominative singular of all stems to have desinential accentuation in Lithuanian. This expectation is contradicted by the *o*-stem nom. sg. *lángas*, adj. *pìktas*. To solve this problem, Nieminen proposed an accent retraction from pre-LI short **a* in a final syllable to the beginning of the word,[13] assuming that the original position of the accent is preserved in def. adj. *piktàsis*. Stang restricted the retraction, which is now known as "Nieminen's Law", maintaining that the retraction took place to an immediately preceding long syllable only.[14] In my view, the *ad hoc* assumption that the retraction is dependent on both the quantity and the quality of the accented vowel makes this accent law unsatisfactory.[15] Besides, Nieminen's Law is rendered superfluous by the Mobility Law (see Ch. 4), in accordance with which LI *lángas* (together with PS *ˌ*lāngu*, adj. *ˌ*māldu*) had received non-desinential accentuation already in Proto-Balto-Slavic.

If we assume that LI *lángas*, *pìktas* and PS *ˌ*lāngu*, *ˌ*māldu* reflect the original Proto-Balto-Slavic accentuation of these words, the desinential accentuation of the definite adjective *piktàsis* requires an explanation. It is imaginable that when the unaccented word-form *ˌ*piktas* was combined with the pronoun *(*į*)*is* at a pre-stage of Lithuanian, the final syllable of the word was accented, according to a rule similar to Vasil'ev–Dolobko's Law in Slavic (see § 4.1 below), which was originally conditioned by the Mobility Law (see Ch 4 § 2.3). If this view is correct, the relationship between LI *pìktas* and *piktàsis* is the same as that between PS *ˌ*māldu* and **māldu-*ˈ*į̄u* (> RU *mólod*, *molodój*). The reason why the desinential accentuation was preserved only in the nominative singular – and not in, say, acc. sg. **piktą̃-jį̄* – may be connected with the desinential accentuation of the nominative singular in the other stem-classes.

13. Nieminen (1922: 155).
14. Stang (1957 [1965]: 158; 1966a: 171); cf. the slightly differing views of Kortlandt (1977: 325); Illič-Svityč (1979: 32); Shintani (1987); Rasmussen (1992a [1999]: 545; 1992b [1999]: 477–478); and see Collinge (1985 [1996]: 119–120).
15. Cf. Stang (1966a: 171 fn. 2).

Monosyllabic words

Lithuanian monosyllabic words often have circumflex tone instead of an expected acute, e.g. pron. masc. nom. pl. *tiẽ* (cf. adj. *gerì*), fut. 3 ps. *duõs* (cf. inf. *dúoti*). While some scholars regard the circumflex tone in monosyllabic words as regular in all cases,[16] others maintain that it is dependent on the vowel or diphthong involved,[17] and still others regard the circumflex as analogical in all cases.[18] Opinions also diverge as to whether the circumflex tone has arisen in Lithuanian, Baltic or Balto-Slavic. Since the problem has no direct relevance to the question of Balto-Slavic paradigmatic mobility, I shall not treat it further here.

1.2. Paradigmatic accent

The Lithuanian free accent plays an important role in the nominal system. In the verbal system, on the other hand, the accent to a large extent follows predictable patterns.

Nominal system

In most Lithuanian nominal stem-classes we find four accent paradigms:

1 Columnar accent on a non-desinential syllable; if the pre-desinential syllable is accented, it has acute tone.
2 Accent on a short or circumflex pre-desinential syllable alternating with desinential accentuation; pre-desinential accentuation in the dative plural.
3 Accent on a non-desinential syllable alternating with desinential accentuation; if the pre-desinential syllable is accented, it has acute tone.
4 Accent on short or circumflex pre-desinential syllable alternating with desinential accentuation; desinential accentuation in the dative plural.

By discounting the effects of Saussure's Law (see § 1.3 below), the four accent paradigms may be reduced to two: AP 1 and 2 are reduced to one immobile

16. Endzelīns (1911 [1974]: 295) with references; (1922b [1979]: 139); van Wijk (1928: 1–2); Rasmussen (1992a [1999]: 542; 1992b [1999]: 481).
17. Petit (2002): circumflexation of diphthongs but not of monophthongs; Kortlandt (2002): circumflexation of *íe*, *úo*, *ë*, *ó* but not of *ý*, *ū́*.
18. Pedersen (1933: 14–15).

paradigm with columnar accent on a non-desinential syllable; and AP 3 and 4 are reduced to one mobile paradigm displaying initial accentuation alternating with desinential accentuation. The accent curves of the immobile and mobile paradigms before Saussure's Law operated are identical to those of AP 1 and 3. The following table represents the basic mobile paradigms of the various stem-classes:

Table 8. Declension of mobile nouns in Lithuanian

	o-stem	*ā*-stem	*i*-stem	*u*-stem	*C*-stem
			SINGULAR		
nom.	*lángas*	*galvà*	*širdìs*	*lietùs*	*duktẽ*
acc.	*lángą*	*gálvą*	*šìrdį*	*líetų*	*dùkterį*
gen.	*lángo*	*galvõs*	*širdiẽs*	*lietaũs*	*dukteřs*[f]
dat.	*lángui*	*gálvai*	*šìrdžiai*[c]	*líetui*	*dùkteriai*
instr.	*lángu*	*gálva*	*širdimì*	*lietumì*	*dukterimì*
loc.	*langè*[a]	*galvojè*	*širdyjè*	*lietujè*	*dukteryjè*
			DUAL		
nom.-acc.	*lángu*	*gálvi*	*šìrdi*	*líetu*	*dùkteri*
dat.	*langám*	*galvóm*	*širdìm*	*lietùm*	*dukterìm*
instr.	*langaĩ̃*	*galvõm*	*širdiĩ̃*	*lietuĩ̃*	*dukterimĩ̃*
			PLURAL		
nom.	*langaĩ*	*gálvos*	*šìrdys*	*líetūs*[e]	*dùkterys*[g]
acc.	*lángus*	*gálvas*	*šìrdis*	*líetus*	*dùkteris*
gen.	*langų̃*	*galvų̃*	*širdžių̃*	*lietų̃*	*dukterų̃*
dat.	*langáms*	*galvóms*	*širdìms*	*lietùms*	*dukterìms*
instr.	*langaĩs*	*galvomìs*	*širdimìs*	*lietumìs*	*dukterimìs*
loc.	*languosè*	*galvosè*[b]	*širdysè*[d]	*lietuosè*	*dukterysè*

a. Less commonly *lánge*; dial. *vãkarie*. b. Dial. *šakósu*, *šakosù*. c. Dial. *ãkie*.
d. Dial. *akýsu*, *akisù*, *akysù*. e. Dial. *líetous*. f. Old LI *dukterés*. g. Old LI *dúktęręs*.

The *ī*-stem nominative singular has desinential accentuation in Lithuanian, e.g. adj. fem. nom. sg. *saldì*; feminine participles like *sùkanti* belong to the root-accented paradigm (gen. sg. *sùkančios*) and are irrelevant to the reconstruction of the mobile paradigm. Note also the desinential accentuation of the mobile *n*-stem nom. sg. *armuõ*. The prehistory of the accentuation of the forms presented in the table is treated in Ch. 4 § 3.1.

As for the distribution of nouns among the accent paradigms, an important tendency in the development of Lithuanian is the analogical spread of accentual mobility at the expense of the immobile paradigms. In many cases the

original accent paradigm of a noun may be recovered by taking into account material from Old and dialectal Lithuanian.[19]

Verbal system

The paradigmatic mobility of the Lithuanian verbal system is significantly more simple than that of the nominal system. If the effects of Saussure's Law are eliminated, the accentuation of Lithuanian verbs is columnar on a non-desinential syllable, e.g. prs. 1 sg. *áugu*, 2 sg. *áugi*, 3 ps. *áuga* etc. The suggestion has been made that the accentuation of some verbs with a non-acute root like 1 sg. *vedù*, 2 sg. *vedì*, 3 ps. *vẽda* does not reflect the operation of Saussure's Law on initially accented forms, but preserves the original accentuation of the mobile paradigm.[20] If this suggestion is correct, Lithuanian points to desinential accentuation in the present 1 singular and non-desinential accentuation in the 3 person; in the 2 singular the introduction of a new desinence obscures the situation.[21] It must be noted, however, that the operation of Saussure's Law would also generate the attested alternations; and the accent alternations of verbs like 1 sg. *galiù*, 2 sg. *galì*, 3 ps. *gãli* are in any case explained as the result of the operation of Saussure's Law on a root-accented paradigm. If Old Lithuanian accent alternations like prs. 3 ps. *żîno* vs. 1 pl. *żinomé*, 2 pl. *żinotê* are old,[22] they point to non-desinential accentuation in the 3 person vs. desinential accentuation (probably on the first syllable of the desinence before Saussure's Law, i.e. **žiˈnāmēʔ*, **žiˈnātēʔ*) in the 1 and 2 plural. Since the status of these forms is unclear, I shall not base further arguments on them.

As for the specific desinences, prs. 3 ps. *sùpa* probably reflects a Proto-Indo-European injunctive form **supét* with secondary introduction of *a* < PIE **o* from the other forms of the paradigm.[23] The 1 pl. *sùpame* somehow reflects the secondary ending PIE **-me*, although the acute final vowel

19. Illič-Svityč (1979: 15–16 and passim).
20. Kortlandt (1977: 326–327); Rasmussen (1992b [1999]: 477–478); see also Darden (1984: 115).
21. See the discussions of the desinence in Stang (1942: 225–230; 1966a: 407–409).
22. Cf. Stang (1966a: 451 fn. 1): "Ob diese Schreibweisen Daukšas korrekt sind, bleibt zweifelhaft."; but Stang is positive to the idea that Daukša has preserved old mobility in the verbs. Kortlandt (2004b: 72–73) regards Daukša's forms as clear evidence of retention of mobility in Old Lithuanian.
23. Endzelīns (1971a: 203–204); Stang (1966a: 410); Berthold Forssman (2001: 163); cf. the alternative view of Kortlandt (1979b: 59–63).

pointed to by reflexive *-mės(i)* is unexpected. Similarly in the 2 pl. *sùpate*, reflexive *-tės(i)*, from PIE **-te*.

As we have seen in § 1.1 above, Lithuanian verbs may be divided in an immobile and a mobile type in accordance with the accentuation of the present participle and of prefixed forms. Most Lithuanian plain thematic presents belong to the mobile type; only some thematic presents whose root contains *i*, *u* or *a* followed by a resonant are immobile.[24] This distribution is not in accordance with our expectations, according to which Proto-Indo-European root-accented presents with full-grade roots should remain root-accented in Proto-Balto-Slavic and Lithuanian, whereas desinentially accented presents with zero-grade roots should become mobile. The athematic presents may support the evidence of Old Prussian and Slavic for Proto-Balto-Slavic root-accentuation,[25] although considerable variation is found in the writings of Daukša.[26]

1.3. Saussure's Law and Leskien's Law

The accent advancement known as "Saussure's Law" played an important role in the late development of the Lithuanian accentual system. The law was established on the basis of a comparison of the Lithuanian AP 1 and 2 on the one hand and AP 3 and 4 on the other. Certain forms that are accented on an acute predesinential syllable in AP 1 and 3 are desinentially accented in AP 2 and 4, e.g. nom. sg. *líepa* AP 1 vs. *rankà* AP 2; acc. pl. *gálvas* AP 3 vs. *žiemàs* AP 4. Similar alternations are found in the verbal system, e.g. prs. 1 sg. *áugu* (3 ps. *áuga*) vs. *supù* (*sùpa*). The desinences of these forms contain a short vowel which often alternates with a long acute vowel in medial position, e.g. def. adj. fem. nom. sg. *geró-ji*; def. adj. fem. acc. pl. *gerą́s-ias*; refl. prs. 1 sg. *sukúo-s(i)*.

Historical remarks

Leskien was the first to propose that quantitative alternations of the type fem. nom. sg. *gerà* vs. *gerója* reflect a shortening of final acute syllables in

24. Stang (1966a: 474–478).
25. Cf. Stang (1957 [1965]: 164; 1966a: 449).
26. See Skardžius (1935: 192–193); but note that Old Lithuanian is adduced as evidence for Proto-Balto-Slavic columnar desinential accentuation by Kim (2002: 206–207).

polysyllabic words,[27] a shortening now known as "Leskien's Law". A diachronic interpretation of the accentual alternations of the type nom. sg. *líepa* vs. *rankà* was given by Saussure. According to Saussure, the four nominal accent paradigms of Lithuanian can be reduced to two basic paradigms, a mobile and an immobile one, by assuming a prehistoric accent advancement from a non-acute syllable to a following acute syllable. Saussure's formulation of the accent advancement, which is usually identified as "Saussure's Law", was the following:

> A une certaine époque anté-dialectale (du reste indéterminée), l'accent "s'est régulièrement porté de 1 syllabe en avant quand, reposant originairement sur une syllabe douce (geschliffen), il avait immédiatement devant lui une syllabe rude (gestossen)".[28]

An accent advancement from a non-acute to a following acute syllable in pre-Lithuanian was also proposed by Leskien[29] and Fortunatov[30] independently of Saussure. The designation "Law of Saussure and Fortunatov" is sometimes used to refer to the hypothesis according to which the accent advancement took place in both Lithuanian and Slavic; see below in this subsection.[31] Since it is the same kind of syllables that attract the accent by Saussure's Law and get shortened by Leskien's Law, the two laws are most conveniently treated together.

While the accent advancement proposed by Saussure was immediately welcomed and is still generally accepted in its original formulation, a few alternative attempts have been made to account for the accent alternations outlined above. As we have seen in Ch. 1 § 4, Sedláček proposed a "reversed" Saussure's Law which to some extent explains the Slavic material but fails to account for the origin of the Lithuanian AP 3 and 4.

Maintaining that it is not possible to speak of tonal oppositions in unaccented syllables, Kuryłowicz rejected the theoretical basis of the standard formulation of Saussure's and Leskien's Laws.[32] What triggered the accent

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27. Leskien (1881: 189); cf. van Wijk (1928: 1); Collinge (1985 [1996]: 115–116). For monosyllabic words see § 1.1 above.
28. Saussure (1896 [1922]: 526); see also (1897: 89); Meillet (1914c: 66); van Wijk (1923 [1958]: 49).
29. See Hirt (1895: 95, 97 with fn. 1), for which cf. Saussure (1896 [1922]: 537–538); Hirt (1929: 145 with fn. 1); Sadnik (1959: 23 fn. 84); see Illič-Svityč (1979: 9, 150 n. 12).
30. Fortunatov (1897b: 62).
31. See Garde (1976, 2: 439–440); Collinge (1985 [1996]: 149).
32. Kuryłowicz (1939 [1973]: 234–235; 1958: 42).

advancement from non-acute syllables, Kuryłowicz claimed, "c'est sans aucun doute l'abrègement des voyelles longues non-entravées en fin de mot."[33] He thus incorporated Saussure's Law and Leskien's Law into one law according to which long vowels in absolute final position were shortened, thereby attracting the accent from a preceding non-acute syllable. For instance, pre-LI nom. sg. *ˈ*rankā* yielded LI *rankà* by Saussure's Law, while in pre-LI gen. sg. *ˈ*rankās* > LI *rañkos* the long vowel was not in absolute final position, whence it was not shortened, nor did it attract the accent. In a case like LI *vil̃ko* the absence of shortening and accent advancement is explained by the original final consonant of the desinence, i.e. pre-LI *ˈ*u̯ilkāt*, which, according to Kuryłowicz, was still present when Saussure's Law operated.

Kuryłowicz's theoretical argument against the traditional formulation of Saussure's Law, viz. the impossibility of tonal oppositions in unaccented syllables, has been rejected by a number of scholars. It was mentioned in the introduction (Ch. 1 § 3, "Prosodic terminology") that Chinese is an example of a language with tonal oppositions in unaccented syllables. Even if there were no such languages, it has been pointed out that the oppositions required by the traditional formulation of Saussure's Law need not be of the type "rising vs. falling", but may instead have been of the type "glottalised vs. non-glottalised" or the like.[34] The Proto-Indo-European distinction between final syllables with and without a syllable-final laryngeal (see Ch. 2 § 4.2) might well have survived in pre-Lithuanian in some non-tonal form. There are thus no theoretical reasons to prefer Kuryłowicz's formulation of Saussure's and Leskien's Laws to the traditional formulation. The problem is reminiscent of that of the Germanic auslautgesetze: as we have seen in Ch. 2 § 3.2, according to one hypothesis the development of Germanic final syllables is determined by the distinction between two kinds of long syllables, according to another it is determined by the absence or presence of a final consonant. An important counterargument to Kuryłowicz's hypothesis is constituted by LI instr. pl. *sūnumìs* < PBS *-ˈ*umīˀs* with shortening in spite of the final consonant;[35] the original length of the final vowel is shown by Žemaitian *-mis* and PS *-*mī*.[36] Kuryłowicz's assumption that final *-*t* was still preserved

33. Kuryłowicz (1952 [1958]: 205); see also (1931: 45–53; 1934: 26–27; 1968: 133–138).
34. Stang (1966a: 137); cf. Endzelīns (1938 [1980]: 321); Garde (1976, 2: 427–428 n. 7); Young (1991a: 88 n. 2); Derksen (2001a: 7–8).
35. Stang (1966a: 136).
36. Endzelīns (1922b [1979]: 138); cf. Stang (1966a: 127–128, 200); Olander (2004: 409–410).

when Saussure's and Leskien's Laws operated also renders his hypothesis less attractive since final obstruents have been lost in all attested Baltic and Slavic languages, a fact which points to a rather early development.

Bonfante reformulated Saussure's and Leskien's Laws as dependent on the quality of the final vowel: "In lituano l'accento si trasporta da una penultima sillaba a intonazione circonflessa su di un *ĭ*, *ŭ* finale (non però su *i*, *u* nasali, es. *ãkį*, *dañgų*)" ["In Lithuanian the accent is shifted from a penultimate syllable with circumflex intonation to a final *ĭ*, *ŭ* (but not to nasal *i*, *u*, e.g. *ãkį*, *dañgų*)"].[37] The formulation does not account satisfactorily for the material and is only rarely referred to in the literature. In an earlier, unpublished study I proposed a formulation of Saussure's Law as an accent advancement from a non-acute syllable to a following syllable containing pre-LI **i u ī ū ǭ*, which became shortened if the syllable was final.[38] I no longer maintain this view, first of all because the syllables that do and do not trigger Saussure's Law surface with different tones, e.g. def. adj. masc. instr. sg. *gerúo-ju* vs. gen. pl. *gerų̃-jų*.[39]

An original reinterpretation of Saussure's Law, which also involves a new view on the accent retraction in Lithuanian prefixed verbs and a rejection of Dybo's Law in Slavic, was proposed by Darden. Assuming that nouns with AP 2 in Lithuanian and AP *b* in Slavic reflect originally desinentially accented words, Darden regards the accent alternations of the Lithuanian AP 2 as the result of "an accent shift […] which moved the accent from a short or circumflex syllable one syllable to the left."[40] Subsequently, the alternation between circumflex root-accentuation and acute desinential accentuation was reinterpreted as a shift to the right and this morphophonological rule was superimposed on mobile words with a circumflex root, yielding AP 4. Apart from requiring a highly sophisticated linguistic reasoning of the language speakers, Darden's idea seems not to be sufficiently supported by the facts. To mention just one of the numerous unclear points in Darden's theory, it is difficult to understand why a form like LI gen. sg. *galvõs* AP 3 would retain its desinential accentuation despite the retraction from circumflex syllables.

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37. Bonfante (1931b: 76; I have omitted a comma before "nasali" in the quotation); cf. (1932: 68 with fn. 1), where Bonfante refers to the Lithuanian accent advancement to final syllables as "la legge di Leskien" ["Leskien's Law"].
38. Olander (2002: 72).
39. The value of this kind of alternations was pointed out to me by Rasmussen (pers. comm.).
40. Darden (1984: 105).

Examination of Saussure's and Leskien's Laws

Having examined the alternative formulations of Saussure's Law and Leskien's Law in Lithuanian, we may now return to the traditional formulation of the laws, trying to establish the precise conditions for the accent advancement and subsequent vowel shortening. The syllables from which the accent was advanced by Saussure's Law were circumflex in pre-Lithuanian, either reflecting Proto-Balto-Slavic circumflex syllables or being the result of *métatonie douce* in originally acute syllables. As mentioned in § 1.1 above, Saussure's Law took place after the originally unaccented word-forms had been reaccented, e.g. PBS nom.-acc. du. *$_{|}$*algāʔi̯* > pre-LI *$^{|}$*algēʔ* > LI *algì* AP 4.

As for the relative chronology between Saussure's Law and Leskien's Law, given the fact that the latter implies a merger of final acute syllables with final short syllables, it evidently cannot precede the former, which distinguishes between acute and short syllables.[41] Moreover, since Žemaitian dialects distinguish PBS short **i*, **u* from acute **īʔ*, **ūʔ* in final syllables, e.g. nom. sg. *àkẽs* < pre-LI **a$^{|}$kis* vs. instr. pl. *-mìs* < **-$^{|}$mīʔs*, the merger caused by Leskien's Law apparently did not take place in all Lithuanian dialects.[42] Combined with the observation that Saussure's Law seems to be Proto-Lithuanian,[43] this suggests that Saussure's Law operated some time before Leskien's Law and that there is no immediate causal connection between the two laws as Kuryłowicz suggested.

In his (1896) article, Saussure did not address the question of the origin of the distinction between syllables that attracted the accent and were shortened in final position, and syllables that did not attract the accent and remained long. Despite Kuryłowicz's objections there is general consensus that the acute tone of the final syllable of LI nom. sg. *rankà* is historically related to that of GK *φυγή*, and that the circumflex tone of dat. sg. *rañkai* is related to that of *φυγῇ*; cf. Ch. 2 § 4.2, also with regard to the following. In the traditional framework, which operated with tonal distinctions in the proto-language, the equation was simple:

PIE acute = GK acute = LI acute
PIE circumflex = GK circumflex = LI circumflex

41. Garde (1976, 1: 192–194); Kortlandt (1977: 328); Holzer (1998: 41; 2001: 46–47).
42. Stang (1966a: 116–117, 127–128); see also Endzelīns (1922b [1979]: 138); Zinkevičius (1966: 233).
43. Van Wijk (1923 [1958]: 59–60).

When a Proto-Indo-European system without tonal distinctions is assumed, the precise phonological structure of the two types of syllables has to be specified. An accurate formulation of Saussure's and Leskien's Laws is crucial to a correct understanding of the Mobility Law, which is the subject of Ch. 4.

It seems reasonably clear that after the operation of Hirt's Law (see § 5.1 below), the reflexes of Proto-Indo-European vowel plus laryngeal (**Vh*, **V*(*R*)*ə*) and vowel followed by a voiced unaspirated stop (**V*(*D*)) merged, yielding a Proto-Balto-Slavic acute long vowel, written **V̄*ˀ in this study. Acute syllables subsequently triggered Saussure's Law in pre-Lithuanian and, in final position, Leskien's Law. Note that hiatal structures of the type PIE *-*V̆*(*h*)*VhC*$_0$ also became acute in Proto-Balto-Slavic and pre-Lithuanian, e.g. PIE nom.-acc. du. *(*h*)*algʷʰáh₂ih₁* > PBS *ˌ*algāˀi̯* > pre-LI *ˈ*algēˀ* > LI *algì* AP 4.[44]

As for Proto-Indo-European plain long vowels (**V̄*), there is no agreement on whether they merged with the above-mentioned vowels (**Vh*, **V*(*R*)*ə*, **V*(*D*) > PBS **V̄*ˀ) or remained prosodically distinct as Proto-Balto-Slavic circumflex vowels (**V̄*). In the following paragraphs we shall discuss the problem of the Proto-Balto-Slavic outcome of Proto-Indo-European plain long vowels in final syllables, where we only have the Lithuanian evidence to judge from. In § 5.1 below the Proto-Balto-Slavic outcome of Proto-Indo-European plain long vowels in non-final syllables will be discussed.

In absolute final position, LI *n*-stem nom. sg. *armuõ* and *r*-stem *duktẽ* indicate that PIE *-*V̄* yielded a circumflex syllable in Proto-Balto-Slavic, while prs. 1 sg. *nešù* points to an acute as the regular outcome of *-*V̄*. Traditionally the *n*- and *r*-stem desinences are reconstructed as PIE *-*ō̃*, *-*ē̃* from *-*ōn*, *-*ēn* with circumflex tone due to the loss of the final sonorant in sandhi; in this case *nešù* may be considered the regular reflex of PIE (acute) *-*ō*.[45] As we have seen in Ch. 2 § 4.2, however, the assumption of distinctive syllabic tones in the proto-language seems unjustified. The acute reflex of PIE *-*V̄* may also be regarded as regular if we assume that the circumflex tone of *armuõ* was introduced by analogy with monosyllables like *šuõ*, *žmuõ*; and that of *duktẽ* may be analogical to the nominative singular of the *ė*-stems.[46]

According to Jasanoff, on the other hand, PIE *-*V̄* yielded circumflex tone in Proto-Balto-Slavic as in *armuõ*, *duktẽ*, whereas the acute reflects *-*Vh*,

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44. Thus also Hollifield (1980: 28).
45. E.g. Hujer (1910: 36–41) with discussion and references; van Wijk (1923 [1958]: 100); Hirt (1929: 203–204); Rasmussen (1989a: 258–259).
46. Hanssen (1885: 616).

as in *nešù* from *-*oh₂*.[47] Similarly, according to Kortlandt, who regards the circumflex as regular in Proto-Indo-European plain long vowels in any position, *armuõ* and *duktẽ* from PIE *-*V̄* are regular, as is *nešù* from PIE *-*oh*.[48] To sum up, there are two possibilities: either the acute tone of *nešù* is the regular reflex of *-*V̄*, the circumflex of *armuõ* and *duktẽ* being analogical; or *armuõ* and *duktẽ* show the regular reflex of *-*V̄*, while *nešù* reflects *-*Vh*. I consider the latter possibility more attractive as it allows us to reconstruct the desinences in the way that most simply accounts for the Balto-Slavic evidence without being contradicted by evidence from other Indo-European languages: PIE *n*-stem nom. sg. *-*ō*, *r*-stem *-*ē*, prs. 1 sg. *-*oh*.[49] I conclude that Proto-Indo-European plain long vowels in absolute final position are regularly reflected as non-acute vowels in Proto-Balto-Slavic.

I have not found any clear Balto-Slavic reflexes of Proto-Indo-European plain long vowels followed by a consonant in a final syllable. Since the Proto-Indo-European ending of the instrumental plural may be reconstructed as both *-*bʰihs* and *-*bʰīs*, PBS instr. pl. *-*mīˀs* is inconclusive. The pre-Lithuanian tone in the locative singular of the *i*-stems, reflecting PIE *-*ēi̯*, is difficult to evaluate.[50]

While there is generally a high degree of coincidence between the final syllables that attracted the accent by Saussure's Law and those that were shortened by Leskien's Law, we find one systematic exception. The pre-Lithuanian final acute diphthongs *-*āˀu̯*, *-*āˀi̯*, *-*ēˀi̯* apparently attracted the accent by Saussure's Law, but instead of becoming shortened by Leskien's Law they acquired circumflex tone, yielding LI *-aũ*, *-aĩ*, *-eĩ*, e.g. prt. 1 sg. *sukaũ*, prt. 2 sg. *sukaĩ*, prt. 2 sg. *vedeĩ*.[51] The desinences that constitute this group of exceptions to Leskien's Law seem to be of secondary origin and need not concern us further here.

As mentioned in the survey of Ch. 1 § 4, in the first half of the twentieth century it was generally agreed that Saussure's Law operated not only

47. Jasanoff (2004a: 249–250 with fn. 6).
48. Kortlandt (1979b: 56; 1997: 26).
49. Andersen (1998a: 445) reconstructs PIE prs. 1 sg. *-*eh₃*; note that a reconstruction *-*oh₂* is in disagreement with the regular distribution of *e*- and *o*-vocalism of the thematic vowel (*-*e*- before an unvoiced segment, *-*o*- before a voiced segment; see Rasmussen 1989a: 139–142); for a discussion of the reconstruction of this desinence in Proto-Indo-European see Szemerényi (1970 [1990]: 365–366); Rix (1976: 250); Rasmussen (1989a: 140–141 fn. 24).
50. See the discussion in Stang (1966a: 209–211, 447).
51. Endzelīns (1911 [1974]: 295); Stang (1966a: 67); Garde (1976, 1: 193); Kortlandt (2002: 15).

in Lithuanian but also in Slavic, either in a common ancestor or independently in the two language branches. A remarkable exception to the *communis opinio* was Kuryłowicz's assumption that the law was purely Lithuanian. Following the new approach to Balto-Slavic accentology initiated by Stang's *Slavonic accentuation*, most accentologists now assume that Saussure's Law did not operate in Slavic, although occasional reference to Saussure's Law in Slavic is found in publications of recent date.[52] For a criticism of the view that Saussure's Law operated in Slavic I refer the reader to Stang's treatment of the problem.[53] It has been proposed to trace back to Proto-Balto-Slavic the intersection of Saussure's Law in Lithuanian and Dybo's Law in Slavic.[54] Since the intersection (the accent is advanced from a non-acute accented syllable to a following acute syllable) requires independent extensions in both Lithuanian (the accent is advanced from an initial non-acute syllable of originally unaccented word-forms to a following acute syllable) and Slavic (the accent is advanced from a non-acute accented syllable to a following non-acute syllable), it seems more economical to keep the two laws distinct.[55]

The possibility should be considered if Saussure's Law affected other Baltic languages than Lithuanian; as mentioned above, it operated in all Lithuanian dialects. As for Old Prussian, forms like *ā*-stem acc. pl. *rānkans*, *i*-stem *āusins* vs. LI *ausìs*, *rankàs* indicate that it did not operate here;[56] cf. the discussion of Kortlandt's Law in Old Prussian (§ 3.1 below). The question if Saussure's Law has operated in Latvian is perhaps not "prinzipiell unlösbar" as Stang maintained,[57] but the evidence is difficult to evaluate. The combination of shortening of final syllables and fixed accent in Latvian renders it impossible to see whether final acute vowels had attracted the accent; and in medial syllables the situation is unclear.

We may conclude that Saussure's Law did not operate in Slavic. Since it seems not to have operated in Old Prussian either and there are no positive

52. Thus Stankiewicz and Klingenschmitt (see Ch. 1 § 4); Schenker (1993 [2002]: 77); Malzahn (1999: 204 fn. 2); Berthold Forssman (2001: 28).
53. Stang (1957 [1965]: 15–20).
54. Dybo, Zamjatina and Nikolaev (1993b: 73 fn. 10); Dybo and Nikolaev (1998: 62); Dybo (2000a: 56–57); Holzer (2001: 46); cf. Lehfeldt (1993 [2001]: 29); Hendriks (2003: 111–112); Hock (2005: 8–9).
55. Thus also Garde (1976, 1: 213).
56. See the discussion in Stang (1966a: 173–174).
57. Stang (1966a: 172); according to scholars like Otrębski, on the other hand, Saussure's Law "undoubtedly" ("niewątpliwie") operated in Latvian (1958: 146).

indications that it operated in Latvian, it is most reasonable to conclude that the law is purely Lithuanian.[58]

2. Latvian

The Latvian distinctive tones present an important contribution to the reconstruction of the Proto-Balto-Slavic prosodic system. As for the problem of paradigmatic mobility, however, the fact that the accent was fixed on the first syllable of the word in the prehistory of Latvian leaves only indirect evidence, primarily concerning the distribution of words among the immobile and mobile paradigms. The final syllable of Latvian polysyllabic words has been shortened by one mora compared to Proto-Balto-Slavic: long vowels are reflected as short vowels, e.g. PBS nom. pl. *ˈ*rankās* > LV *rùokas* (cf. LI *rañkos*); and short vowels (except **u*) have disappeared, e.g. PBS nom. sg. *ˌ*deiu̯as* > LV *dìevs* (cf. LI *diẽvas*).

2.1. Prosodic system

The accent is fixed on the first syllable of the word in all dialects of Latvian. The prosodically conservative Central Latvian dialects distinguish three tones in long syllables: the falling tone ("Fallton"; *x̀*), the sustained tone ("Dehnton"; *x̃*) and the broken tone ("Stoßton" or "Brechton"; *x̂*).[59] The three-tone distinction, indisputable in initial syllables, is less well preserved in non-initial syllables, where the falling and sustained tones seem to have merged.[60] Short syllables do not display phonologically relevant tones. In most of the Latvian-speaking area, the tones have merged in various ways, generally reducing the three-tone opposition to a two-tone opposition. In this presentation I follow the usual practice, referring only to data from dialects that have preserved the three-tone opposition.[61] A minimal triplet showing

58. Thus also Kortlandt (1975: 26; 1977: 327–328); Dybo (1977: 594 fn. 2); Young (1994: 107 fn. 11).
59. Endzelīns (1899 [1971]; 1922a: 21–24); van Wijk (1923 [1958]: 32–36); Stang (1966a: 140–143); Gāters (1977: 24–25); Derksen (1991: 46–47; 1996: 11–14); Berthold Forssman (2001: 79–81).
60. Derksen (2001b: 81).
61. Of only academic interest now are the historical interpretations of the Latvian tones based on dialects with two-tone systems, e.g. Saussure (1896 [1922]: 537); Hirt (1895: 68–70); see van Wijk (1923 [1958]: 36–37).

the three tones is *luõks* 'leek' vs. *luôgs* 'window' vs. *lùoks* 'shaft-bow'. From a typological point of view, Latvian is an accent language with fixed accent, distinctive quantity and syllabic tones.

The fixed accent of Latvian obviously prevents a direct comparison of Latvian data with the Lithuanian paradigmatic mobility. Nonetheless, the syllabic tones do allow us some insight into the accentuation system of pre-Latvian before the accent was fixed. As shown by Endzelīns,[62] we find a regular set of correspondences between the tone of the root in a Latvian word and the accent paradigm of the corresponding Lithuanian word.[63] Latvian words with falling tone in the root-syllable correspond to Lithuanian words with AP 2 or 4, e.g. LV *rùoka*, LI *rankà* AP 2; LV *dràugs*, LI *draũgas* AP 4. Words with sustained tone in Latvian correspond to Lithuanian words with AP 1, e.g. LV *liẽpa*, LI *líepa* AP 1. And words with broken tone in Latvian correspond to Lithuanian words with AP 3, e.g. LV *gaĺva*, LI *galvà* AP 3. These correspondences show that the Latvian falling tone is regular in words with a Proto-Balto-Slavic circumflex root-syllable, whereas the sustained and broken tones are found in words with an originally acute root-syllable. Since the falling tone only attests that a word originally had a circumflex root-syllable but is indifferent as to whether the word was mobile or not, in the following we shall concentrate on the sustained and broken tones.

While the correspondences as such are undisputed, the interpretations of the historical developments behind them diverge.[64] The classical view is that of Endzelīns who suggested that Proto-Balto-Slavic accented acute syllables received sustained tone in Latvian, while originally pretonic acute syllables received broken tone.[65] In mobile words with an acute root-syllable, desinentially accented forms regularly developed a broken tone, e.g. nom. sg. *gaĺva*, gen. *gaĺvas*, loc. *gaĺvã* (cf. LI *galvà*, *galvõs*, *galvojè*). Having considered some problematic aspects of this development, Stang accepted Endzelīns's hypothesis, pointing out that forms like loc. pl. *gaĺvâs* (cf. LI *galvosè*) require first an accent retraction from the final to the medial syl-

62. Endzelīns (1899 [1971]: 126); cf. Derksen (1996: 6, 14–16).
63. The reference to this set of correspondences as "Endzelīns's Law" (e.g. Young 1994) is somewhat inappropriate since the same designation is applied also to the development of the Baltic diphthongs **aį̃* and *eį̃* in East Baltic (Collinge 1985 [1996]: 37–39).
64. See Hock (2004: 13–15) with references.
65. Endzelīns (1922a: 25); see also Berthold Forssman (2001: 106–107). I do not treat Kuryłowicz's view on the Latvian tones here (e.g. 1952 [1958]: 338–356; 1968: 181–188); see Stang (1966a: 141) for criticism.

lable, then to the initial syllable.[66] A modification of Endzelīns's hypothesis was proposed, within a somewhat different framework, by Kortlandt, according to whom the broken tone is regular in all originally unaccented acute syllables.[67] This solution solves the problem of the "double retraction" in forms like loc. pl. *galv̂âs*.

Traces of unaccented word-forms

Already Endzelīns pointed out that according to his hypothesis the Latvian broken tone cannot be phonetically regular in originally root-accented forms, e.g. acc. sg. *galv̂u*, dat. *galv̂ùi*, instr. *galv̂u* (cf. LI *gálvą*, *gálvai*, *gálva*); in the expected forms **galṽu*, **galṽùi*, **galṽu*, the tone must have been analogically replaced with the tone of the desinentially accented forms.[68] The same problem applies to Kortlandt's hypothesis. The Latvian dialects show considerable agreement in having generalised the broken tone throughout the paradigm in words with AP 3 in Lithuanian. Since the number of originally root-accented and desinentially accented forms in both the *ā*- and *o*-stems was balanced, the consistent generalisation of the broken tone is surprising. In Latvian *o*-stems which are rarely or never used in the plural, e.g. *ârs* 'outside', *zuôds* 'cheek' (cf. LI *óras* AP 3 'air', *žándas* AP 3 'cheek'), the generalisation of the broken tone is particularly unexpected since the singular of the *o*-stems almost exclusively comprised forms with non-desinential accentuation.[69]

While I basically agree with Kortlandt that Proto-Balto-Slavic unaccented acute syllables yielded a Latvian broken tone regardless of whether they preceded or followed the orginally accented syllable, it seems to me that the best explanation of the Latvian broken tone in initial syllables is that offered by Garde and Young. According to these scholars, the broken tone is

66. Stang (1966a: 140–143).
67. Kortlandt (1977: 324; 1998); similarly Derksen (1991: 52–53; 1995: 166 with fn. 7; 1996: 15–16 with fn. 8; 2001a: 7–8); Young (1994: 105–106); Rasmussen (pers. comm.).
68. Endzelīns (1922a: 26); cf. van Wijk (1923 [1958]: 38); Stang (1966a: 141).
69. This fact was pointed out by Endzelīns (1916 [1974]: 597–598), who regarded it as an indication that some Proto-Baltic *o*-stems had desinential accentuation; cf. van Wijk (1923 [1958]: 74 with fn. 127). Derksen has informed me (pers. comm.) that plural forms of these words are attested in Latvian; Kortlandt (pers. comm.) also expresses doubts as to the status of these words as *singularia tantum*. Nonetheless, the words discussed by Endzelīns must have been in significantly more frequent use in the singular than in the plural.

regular in forms like acc. sg. *galv̂u* because the form was unaccented when the assignment of tones took place in pre-Latvian.[70] The assumption that the non-desinentially accented forms of mobile words were unaccented in pre-Latvian not only explains why the broken tone is generalised so consistently in these paradigms in Latvian, it also provides a straightforward solution of the broken tone in a word like LV *zuôds* where practically all corresponding Lithuanian forms show root-accentuation. Although alternative solutions for such cases may be proposed, Latvian strongly suggests that the non-desinentially accented forms of the mobile paradigms were unaccented in Proto-Baltic, as they were also in Proto-Slavic (see § 4.1 below).

2.2. Paradigmatic accent

The absence of tonal alternations in root-syllables in Latvian, which, as we have seen above, probably has a phonetic origin, considerably limits the contribution of Latvian to the reconstruction of the accent curves of the mobile paradigms. Desinential syllables also tend to have one and the same tone in words of all paradigms. Theoretically, a broken tone in a desinential syllable would indicate that this syllable had been unaccented under certain conditions; but since all desinences were unaccented at least in root-accented paradigms, the broken tone could have been generalised from these paradigms. A sustained tone on an originally acute desinential syllable, on the other hand, would indicate that the syllable was accented in a mobile paradigm. In this case, however, the merger of the sustained and falling tones in non-initial syllables makes it virtually impossible to deduce anything from the occurrence of a non-broken tone in a desinential syllable.

Nominal system

The correspondences between the tone of a word in Latvian and the accent paradigm of the word in Lithuanian were mentioned above with a few examples from the nominal system. Latvian evidence is important for the reconstruction of the original distribution of nouns and adjectives with an acute root-syllable among the immobile and mobile accent paradigms.[71]

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70. Garde (1976, 1: 195–196); Young (1994: 106).
71. Illič-Svityč (1979: 52–53).

Verbal system

In the Latvian verbal system the root of a given verb usually has the same tone in all stems (present, preterite, infinitive).[72] Possible divergences among the stems, both in tone and in accent, have disappeared. An example like LI prs. 3 ps. *mìršta* vs. inf. *miřti* shows that different stems of a verb may have different tones in the root, and LI prs. 3 ps. *nèsuka* vs. prt. *nesùko* indicates that a root may sometimes be unaccented and sometimes accented. In Latvian such differences are not present. Nonetheless, the former existence of immobile and mobile verbs is indicated by the different tone in verbs like prs. 1 sg. *riẽtu*, *nãku* vs. *bę̂gu*, *sâku*, the former with sustained tone pointing to original initial accentuation, the latter with broken tone pointing to non-initial accentuation. Moreover, the broken tone of LV prs. 1 sg. *ę̂mu*, *duômu* points to former desinential accentuation in at least some forms of the athematic verbs.[73] In consideration of the fact that both Old Prussian and Slavic point to root-accentuation, we may assume that the Latvian broken tone in the athematic present represents an innovation.

3. Old Prussian

Because of the limited material and the problems concerning the interpretation of the writing system, especially as regards prosody, the analysis of the extinct Baltic language Old Prussian presents great difficulties. On the other hand, since Old Prussian has retained a free accent, it has the potential of providing important supplementary evidence to that provided by Lithuanian.

Our knowledge of the Old Prussian prosodic system is based on the *Enchiridion*, or *Third Catechism*. As established by Fortunatov and Berneker, the translator Abel Will used a macron-like (or perhaps rather tilde-like[74]) diacritic above vowels to denote a long accented vowel, e.g. OPR nom. sg. *mūti*, inf. *turīt*, acc. sg. *sālin* corresponding to LI *mótė*, *turė̃ti*, *žõlę*.[75] In diphthongs the macron was placed either above the first or the second part, indicating a

72. For the Latvian verbal accentuation system see Stang (1966a: 455–458).
73. Stang (1957 [1965]: 164; 1966a: 458).
74. Dybo (1998: 5).
75. Fortunatov (1897a: 153); Berneker (1896: 103); for the Old Prussian prosodic marking and accentuation system see also Trautmann (1910: 184–203); van Wijk (1923 [1958]: 41–43); Endzelīns (1944 [1974]: 25–31); Stang (1966a: 143–144).

falling or rising tone respectively. Since for typographical reasons the macron could not be placed above the sonorants *r l m n*, only falling tone could be indicated in diphthongs ending in a sonorant. In cases of diphthongisation of **ī* and **ū* we sometimes find a macron above the second part of the diphthong as an indication of rising tone (e.g. inf. *boūt*, masc. acc. pl. *geīwans*).[76]

Except for the rather common typographical errors, the presence of a macron quite reliably reveals accent and tone, but the same cannot be said of the absence of a macron as a marker of unaccentedness. In many cases an expected macron is absent. Only when words occur with some frequency may we draw conclusions from the negative evidence constituted by the absence of a macron (see § 3.1 below, "Unaccented word-forms?").

Double consonants

While it is generally accepted that the macron marks accent and tone in Old Prussian, the significance of the frequently occurring double writing of consonants is more disputed. The lowest common denominator seems to be the view that double writing indicates shortness of a preceding vowel. The more cautious scholars maintain that this is in fact all we can deduce from the double writing, which thus does not reveal information on the position of the accent.[77] Others maintain that a double consonant marks the shortness of the preceding vowel.[78] According to a third view, first put in writing by Kortlandt but presented orally approximately at the same time by Dybo, the double writing of consonants indicates accent on a following syllable;[79] see § 3.1 below, "Kortlandt's Law".

The view that the double writing of consonants indicates accent on a preceding short vowel is contradicted by the frequent occurrence of words containing a double consonant before a vowel with a macron, e.g. nom. sg.

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76. See Stang (1966a: 50–51) for the representation of **ī* and **ū* in Old Prussian.
77. Berneker (1896: 102); Endzelīns (1944 [1974]: 23–24); Schmalstieg (1974: 25; 2001: 26); Parenti (1998: 136), but cf. Kortlandt (1999); Kim (2002: 105 fn. 3).
78. Trautmann (1910: 195–197), admitting that <VCCV> may also represent accent on the second vowel or two unaccented vowels (cf. Illič-Svityč 1979: 70); Rysiewicz (1939 [1956]: 123); I have not been able to verify Kortlandt's claim (1974: 299) that Berneker and Endzelīns support this "traditional doctrine"; reference to this view as the "traditional assumption" (Derksen 1996: 16) or the "*communis opinio*" (Kim 2002: 105 fn. 3) seems exaggerated; cf. Young (2000: 5).
79. Kortlandt (1974: 300); Dybo (1982: 246–247 with fn. 25; 1998: 6 with fn. 4).

semmē, prt. 3 ps. *weddē* etc.[80] Examples like this find a natural explanation if the hypothesis is accepted that the double writing indicates that the following vowel was accented. The practice found in contemporary Lithuanian publications from East Prussia has been adduced as an argument in favour of this hypothesis.[81] In these publications a double consonant indicates shortness of a preceding *a* or *e*; and since accented *a* and *e* have been lengthened in Lithuanian, we find for example acc. sg. *rásą* vs. gen. *rassôs* (corresponding to modern LI *rãšą*, *rašõs*), where the double consonant in the latter form indirectly shows that the following syllable is accented.[82]

As Young notes, however, since *i* and *u* are short in Lithuanian even when accented, the correlation of accent and single or double writing of consonants in Lithuanian texts only exists in words containing *e* and *a*.[83] The general principle of these texts, and also of contemporary German texts from East Prussia, is that a double consonant denotes that the preceding vowel is short without reference to the accent.[84] It is most likely that Old Prussian followed a similar principle. An internal problem to the hypothesis that the double writing of consonants indicates accent on a following vowel is constituted by words containing two occurrences of double consonants, e.g. subj. 1 pl. *tickinnimai*, and by words containing a double consonant and an accented vowel not immediately following the double consonant, e.g. inf. *pallaipsītwei*. I assume that in Old Prussian a double consonant simply indicates shortness of a preceding vowel with no reference to the accent.

3.1. Prosodic system

As shown by the distribution of vowels with a macron in the *Enchiridion*, Old Prussian had a free accent. The distinction between two types of diphthongs – one with a macron above the first vowel letter and another with a macron above the second vowel letter – indicates that Old Prussian, like Lithuanian and Latvian, had syllabic tones. The Old Prussian tones correspond historically to the Lithuanian and Latvian tones in the following way:

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80. Kortlandt (1974: 299).
81. Derksen (1996: 16–17).
82. Illič-Svityč (1979: 17–18).
83. Young (2000: 10); but cf. Kortlandt (2000: 195–196).
84. For Lithuanian see Schmalstieg (2001) with discussion and references; for German see Endzelīns (1944 [1974]: 23).

Table 9. Correspondences between Old Prussian, Lithuanian and Latvian tones

	OLD PRUSSIAN	LITHUANIAN	LATVIAN
acc. pl.	rising: *kaūlins*	falling: *káulas* AP 1	sustained: *kaũlus*
masc. acc. pl.	rising: *geīwans*	falling: *gývas* AP 3	broken: *dzîvus*
acc. sg.	falling: *rānkan*	rising: *rañką* AP 2	falling: *rùoku*
acc. sg.	none: *deinan*	rising: *diẽną* AP 4	falling: *dìenu*

For the correspondence OPR acc. sg. *deinan*, LI *diẽną* AP 4, LV *dìenu*, see below in this subsection, "Unaccented word-forms?".

Kortlandt's Law

A comparison of word-forms like LI nom. sg. *žẽmė*, prt. 3 ps. *vẽdė*, where the accent falls on an originally short vowel, with the corresponding Old Prussian forms *semmē*, *weddē*, where the accent is on the syllable following the short vowel, has led Kortlandt and, independently, Dybo to assume that at a pre-stage of Old Prussian "a stressed short vowel lost the ictus to the following syllable",[85] an accent advancement referred to as "Kortlandt's Law".[86] While emphasising that "the law was formulated without reference to the hypothesis",[87] i.e. the hypothesis mentioned above that double consonants indicate accent on a following syllable, Kortlandt also acknowledges that the hypothesis and the law "mutually support each other". As Kortlandt himself mentions, if the hypothesis is rejected, a large part of the evidence in favour of the law vanishes, e.g. forms like *buttan*, *dessimton*, *gallan* corresponding to LI *bùtas*, *dẽšimt*, *gãlą*.

Kortlandt's Law has got a mixed welcome in the scholarly literature. Scholars who accept Kortlandt's hypothesis regarding double consonants also accept the accent law,[88] while others reject both the hypothesis and the law.[89] As stated above, I do not consider it plausible that the double writing of consonants in the *Enchiridion* indicates the position of the accent. Accord-

85. Kortlandt (1974: 302, sentence emphasised in original); cf. Dybo (1982: 246–247 with fn. 25; 1998: 6–7 with fn. 4).
86. Dybo (1982: 247 fn. 25; 1998: 6–7); Collinge (1985 [1996]: 234–235); Derksen (1996: 28–29).
87. Kortlandt (1974: 303); cf. (2000: 193–194).
88. Dybo (1982: 246–247 with fn. 25; 1998: 6–7); Rasmussen (1992b [1999]: 475 and pers. comm.); Derksen (1996: 16, 28–29).
89. Young (2000: 14); see also Dini (2002: 278); Schmalstieg (2001: 26).

ingly, I agree with Young in regarding the evidence in favour of the accent advancement as insufficient.

Unaccented word-forms?

It was pointed out early in the investigation of the Old Prussian prosodic system that a group of words containing a diphthong in the initial syllable are never printed with a macron.[90] Because of the possibility of misprintings, in rarely occurring words no conclusions can be drawn from the absence of a macron. However, in words like *deiws* 'god', various forms of which are attested more than 100 times in the *Enchiridion*, the negative evidence cannot be ignored.[91] Other words of this type are acc. sg. *deinan* 8×, nom. sg. *waix* 3×, acc. sg. *laukan* 3×. Interestingly, most of the words in this group correspond to words with AP 4 in Lithuanian (thus *diẽvas*, *dienà*, *vaĩkas*, *laũkas*), i.e. words with a Proto-Balto-Slavic circumflex root-syllable and mobile accentuation. The absence of an accent on the first syllable of these words is traditionally taken as evidence of the assumed original desinential accentuation of these words. Since it is hard to imagine that desinential accentuation would have been preserved in monosyllabic forms like *deiws*, *waix* etc., most authors consider the possibility of the existence of a special tone, a "dritte Intonation" or "Mittelton", distinct from both the rising and the falling tones.[92]

Now consider the facts that (1) words of the type *deiws*, *deinan* correspond to Lithuanian mobile words; (2) Slavic, Latvian and perhaps also Lithuanian evidence suggests that the non-desinentially accented forms of mobile paradigms were phonologically unaccented in Proto-Balto-Slavic; (3) the non-marking of the initial syllable of *deiws*, *deinan* is identical to the

90. Fortunatov (1897a: 167–169); Hirt (1899: 36–37); Trautmann (1910: 189–190); van Wijk (1923 [1958]: 43 with fn. 98, 74); Endzelīns (1944 [1974]: 30–31); Stang (1957 [1965]: 60–61; 1966a: 144, 172–173, 300); Illič-Svityč (1979: 70–71).

91. Cf., on the other hand, Kortlandt (1974: 299): "I shall abstain from the use of negative evidence, that is to say, I shall not draw any conclusions from the absence of a symbol in the text. Thus, I consider the accentuation of *deiws*, *deiwas*, *deiwan*, *deiwans* unknown."

92. Fortunatov (1897a: 167–168); van Wijk (1923 [1958]: 43); Stang (1966a: 144, 172–173, 300).

non-marking of unaccented syllables. The solution suggests itself that words of the type *deiws*, *deinan* were unaccented in Old Prussian.[93]

In contrast to the above-mentioned words with a Proto-Balto-Slavic short root-syllable, forms like masc. acc. pl. *geīwans* (cf. LI *gývas* AP 3, LV *dzîvs*), acc. pl. *zwīrins* (cf. LI *žvėrìs* AP 3, LV *zvęĝrs*) perhaps indicate that the non-desinentially accented forms of mobile words with a long root-syllable had acquired root-accentuation in Old Prussian. As shown by Slavic and Latvian, this would be a secondary development. The prosodic status of these forms and of forms like acc. sg. *mērgan* for expected **mergan* (cf. dat. pl. *mergūmans*; LI *mergà* AP 4), needs further investigation in the light of the hypothesis advanced here that the Proto-Balto-Slavic unaccented word-forms were preserved in Old Prussian.

3.2. Paradigmatic accent

Nominal system

Since we cannot establish more than fragments of paradigms in Old Prussian, we meet serious problems in trying to establish the system of paradigmatic accentuation. As for the nominal system, there is general agreement that examples like nom. sg. *spigsnā* vs. acc. *spīgsnan* and acc. sg. *mērgan* vs. dat. pl. *mergūmans* show that the language had a paradigmatic mobility similar to that of Lithuanian and Slavic.[94] Because of the paucity of the material, however, Old Prussian does not offer any substantial positive evidence for the reconstruction of the Proto-Balto-Slavic mobile accent paradigms.

Verbal system

We also do not have a clear picture of the Old Prussian system of verbal accentuation. Stang divided the present tense of the thematic verbs into an immobile and a mobile type, comparing them to the two classes of Lithuanian.[95] The Old Prussian mobile type, according to Stang, still preserves traces of an accent alternation between the singular and the plural, e.g. prs.

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93. Thus Olander (2002: 80–81; forthc. a); interestingly, van Wijk incidentally referred to these words as "akzentlos" (1923 [1958]: 43 fn. 98), intending, however, their graphic appearance, not their prosodic status.
94. Illič-Svityč (1979: 71); Stang (1966a: 293); Kortlandt (1974: 301).
95. Stang (1966a: 451–455).

2 sg. **gī́vasei* vs. 1 pl. **gīvàmai*. This proposal is, however, quite speculative. In the athematic present, root-accentuation is quite clearly indicated by 2 sg. *ēisei* and *dāse*, 3 ps. *ēit*, *perēit*, *dāst*, 1 pl. *perēimai*.

4. Proto-Slavic

The reconstructed Slavic phonological system used as the point of reference in this study and referred to as "Proto-Slavic" somewhat differs from the system traditionally applied in works of this kind. The system used here may in some (practical) sense be regarded as a pre-stage of the traditional system. Since a number of developments that strictly speaking belong to a post-Proto-Slavic period are not taken into account here,[96] we may focus better on the parts of the Slavic accentuation system that are relevant to the question of the development of the Balto-Slavic paradigmatic accent mobility. The system applied here is less anachronistic than the traditional system.

The Proto-Slavic segmental system comprised thirteen consonants: six stops, **p b t d k g*; three fricatives, *s z x*; four sonorants, *m n l r*. The vowel system comprised four short vowels, **a e i u*, and four long vowels, **ā ē ī ū*.[97] The two semivowels, which were probably variants of **i u* and did not have independent phonological status, are denoted **i̯ u̯*. Dybo's Law (see §4.3 below) had operated in this system, while Stang's Law (see below in this subsection), which was probably triggered by the monophthongisation of the diphthongs, had not. Note that the Proto-Slavic vowel system applied here implies that a number of Slavic vowel shortenings and lengthenings, e.g. in the first syllable of ŠTK nom. sg. *jägoda*, CZ *jahoda* (< PS **ˈi̯āgadā*), or in the second syllable of ŠTK prs. 3 sg. *bȅrē* (< PS **bereˈti*), have taken place at a post-stage of Proto-Slavic.[98] Accordingly, they are not taken into consideration here.

While the primary point of reference in this study is Proto-Slavic, I occasionally present various word-forms in the traditional notation in order to facilitate their identification. I shall refer to the traditional system, which comes close to that of Old Church Slavic, as "Common Slavic". The Com-

96. Cf. Stang (1957 [1965]: 52–55); Jakobson (1963: 156–159); Andersen (1996: 185–187); Holzer (1995: 248); see Hock (2004: 4 with fn. 5).
97. Cf. the identical or similar systems of Andersen (1996: 186; 1998a: 423); Holzer (2003: 34), assigning phonological status to **j* and **w*; for the vowel system cf. Jakobson (1963: 154–156); Andersen (1985: 72–73) ("Early Slavic I").
98. See the discussion in Stang (1957 [1965]: 52–55).

mon Slavic notational system is, with minor divergences, applied in standard works like Stang's *Slavonic accentuation* (1957 [1965]), Illič-Svityč's *Nominal accentuation in Baltic and Slavic* (1979) and Dybo's *Славянская акцентология* [Slavic accentology] (1981).

In this study I do not take into account words of the so-called "*volja*-type",[99] the accentological peculiarities of which seem to be of a rather recent date.

4.1. Prosodic system

Proto-Slavic had a free accent and distinctive quantity. The accented syllable was probably characterised by high pitch, as opposed to the low pitch of unaccented syllables. If a word-form containing only syllables with low pitch, i.e. an unaccented word-form,[100] was followed by an enclitic, the enclitic received an automatic ictus. If there was no enclitic, the phonological word, i.e. the morphological word-form preceded by zero or more proclitics, received an automatic ictus on the initial syllable. The unaccented word-forms, which at later stages of Slavic often received initial accentuation, were realised differently from initially accented word-forms.[101] The mora was not a relevant unit in the description of the Proto-Slavic accentual system; there were no distinctive syllabic tones of the type rising vs. falling, nor a distinction between glottalised and non-glottalised vowels.[102] The Proto-Slavic prosodic system was typologically similar to those of Vedic and Tokyo Japanese.

It is traditionally assumed that the Proto-Slavic prosodic system included an opposition between (at least) two types of tones, a rising (acute) and a falling (circumflex), apart from the quantitative and accentual oppositions. In the Proto-Slavic phonological system used here, however, such a tonal opposition would be redundant. The opposition traditionally expressed in terms of acute and circumflex tones is reinterpreted in terms of quantity and

99. Cf. Stang (1957 [1965]: 37–39, 57–59, 169).

100. For the class of unaccented word-forms, or "enclinomena", in Proto-Slavic, cf. Jakobson (1963: 159–161); Garde (1976, 1: 26–29 and passim); Dybo (1981: 9, 261–262); Lehfeldt (1983: 93–94; 1993 [2001]: 33–36); Steensland (1990: 61); Hock (1992: 9–10, 60–61).

101. Cf. Kortlandt (1983a: 37 with fn. 9).

102. The Proto-Balto-Slavic distinction between glottalised and non-glottalised vowels (see § 5.1 below) had disappeared in pre-Proto-Slavic, at the latest immediately after Dybo's Law had taken place.

accent: syllables are acute if they are accented and contain a long vowel, circumflex if they are unaccented or contain a short vowel (cf. § 5.1 below, on the same question in Proto-Balto-Slavic). For instance, the first syllable of PS acc. sg. *ˈ*lēi̯pān* AP *a* (CS **lípǫ*) is acute, while the first syllable of PS acc. sg. *ˌ*gālu̯ān* (CS **gôlvǫ*) and the medial syllable of PS prs. 3 pl. **ma*ˈ*ganti* (CS **mògǫtь*) are circumflex.

The interpretation of the distinction between acute and circumflex syllables in terms of quantity and accent instead of tones has the advantage of leading to more regular phonotactics than the traditional view. Long vowels may occur in the same positions as short vowels, including the position before a tautosyllabic resonant. Furthermore, acute syllables diachronically do reflect Proto-Balto-Slavic syllables containing a long vowel (whether glottalised or non-glottalised, if this distinction was relevant; see § 5.1 below).

The following three word-forms show accent on the first syllable, accent on the second syllable and unaccentedness respectively:

Table 10. Reflexes of Proto-Slavic accentuation types in Russian and Štokavian

	PROTO-SLAVIC	COMM. SL.	RUSSIAN	ŠTOKAVIAN
nom. sg.	*ˈ*dārgā*	**dőrga*	*doróga*	*drȁga*
nom. sg.	**gālˈu̯ā*	**golvà*	*golová*	*gláva*
acc. sg.	*ˌ*gālu̯ān*	**gôlvǫ*	*gólovu*	*glâvu*

Accented syllables in initial position were always long, e.g. nom. sg. *ˈ*dārgā* (CS **dőrga*), whereas in medial and final position they could be long or short, e.g. instr. pl. **ge*ˈ*nāmī* (CS **ženámi*), nom. sg. **ge*ˈ*nā* (CS **ženà*); fem. nom. sg. **ga*ˈ*tau̯ā* (CS **gotòva*), nom.-acc. sg. **du*ˈ*na* (CS **dъnò*). In unaccented syllables containing a vowel followed by a resonant, e.g. both syllables of acc. sg. *ˌ*gālu̯ān* (CS **gôlvǫ*) or the first syllable of nom. sg. *ˌ*u̯arnu* (CS **vôrnъ*), the quantitative distinction is probably not reflected in any Slavic language; in the Proto-Slavic reconstructions, however, I retain the distinction as established on the basis of extra-Slavic comparison (cf. LI acc. sg. *gálvą* AP 3 vs. nom. sg. *vaȓnas* AP 4).

While opinions diverge on the origin and antiquity of the unaccented word-forms (see § 5.1 below), there seems to be agreement that they constituted a relevant category in Proto-Slavic.[103] From a morphological point of view, unaccented word-forms were found in the mobile accent paradigms where they alternated with forms with desinential accentuation.

103. Cf. Kortlandt (1978a: 73); Andersen (1998a: 428).

Šaxmatov's Law and Vasil'ev–Dolobko's Law

On the basis of prepositional phrases and prefixed forms like RU *zá ruku*, *pó vodu*, *zá gorod*, *pródal*, ŠTK *nà rūke*, *nà vodu*, *ù grād*, *pròdāli*, ČAK *và rūku*, *nà vodu*, *zàspāl*, a number of scholars assume an accent retraction from a word-initial syllable with falling tone to a proclitic or prefix;[104] cf. the falling tone of ČAK *spâl*, *rûku*, *vȍdu*. This retraction is usually referred to as Šaxmatov's Law. Similarly, phrases involving enclitics, e.g. RU dial. *zimús'*, Old RU *nošči bó*,[105] ŠTK *zìmūs*, *nòćas*, are interpreted as the result of an accent advancement from a word-initial syllable with falling tone to an enclitic;[106] cf. the long falling tone of ŠTK acc. sg. *zîmu*, *nôć*. This advancement is often referred to as Vasil'ev–Dolobko's Law.

If the view is accepted that the word-forms that lose the accent to a proclitic or enclitic were unaccented in Proto-Slavic, then Šaxmatov's Law and Vasil'ev–Dolobko's Law should no longer be seen as a retraction and an advancement of the accent. The accentuation of the clitic is the result of the automatic ictus placement rule inherited from Proto-Balto-Slavic governing the prosodic realisation of combinations of unaccented word-forms and clitics.[107] As we shall see in Ch. 4 § 2.3, the Proto-Balto-Slavic ictus placement rule is the direct synchronic result of the accent loss that took place in syllables of a certain structure in pre-Proto-Balto-Slavic and gave rise to the Balto-Slavic paradigmatic accent mobility.

Meillet's Law

Meillet was the first to draw attention to the fact that a number of words with an acute root-syllable and mobile accentuation in Lithuanian correspond to Slavic mobile words with a circumflex root-syllable, e.g. LI acc. sg. *gálvą*, *sū́nų* AP 3 vs. ŠTK acc. sg. *glâvu*, nom. sg. *sîn* AP *c*.[108] Stang regarded the unexpected tone of CS **gôlvǫ* etc. as analogical to words with an originally

104. Šaxmatov (1915 [2002]: 85); Bulaxovs'kyj (1947 [1980]); Kortlandt (1975: 28) ("Pedersen's Law"); see also Brandt (1880: 223 fn. 1); Collinge (1985 [1996]: 153–154); but cf. Meillet (1924a [1934]: 168–169).
105. Quoted from Dybo (1975: 33).
106. Dolobko (1927); Stang (1957 [1965]: 102–103); Kortlandt (1975: 38–40); see Collinge (1985 [1996]: 29–30) for further references.
107. Similarly Dybo (1971: 83–84); Garde (1976, 2: 429 n. 15); see also Lehfeldt (1983: 93–94); Hock (1992: 61–62 with fn. 110).
108. Meillet (1902).

non-acute root-syllable. After the loss of tonal distinctions in pretonic syllables, the following proportion obtained:[109]

Nom. sg. **zimà*, acc. **zîmǫ* = nom. sg. **golvà*, acc. (**gőlvǫ* →) **gôlvǫ*.

In the light of the hypothesis that the non-desinentially accented word-forms of the mobile paradigms were unaccented in Proto-Balto-Slavic and Proto-Slavic, it is possible to interpret the prosodic merger of acute and circumflex syllables in Slavic as a neutralisation of this opposition in unaccented syllables, i.e. as a phonetic change, not an analogical development.[110] An argument against the traditional assumption that the tone of ŠTK *glâvu* is analogical is constituted by *o*-stem *singularia tantum* like CS **smôrdъ* 'stench' and **tûkъ* 'fat' (cf. the similar argumentation concerning the Latvian broken tone in 2.1 above).[111] The absence of desinentially accented forms in the paradigms of these words deprives the proportion given above of a necessary component, except in combinations with clitics.

As we have seen in the preceding paragraphs, various Slavic phenomena find a natural explanation if the view is accepted that the non-desinentially accented word-forms of the mobile paradigms were unaccented in the prehistory of Slavic.[112]

Stang's Law

Of post-Proto-Slavic date but apparently affecting all Slavic languages, Stang's Law deserves a remark.[113] The accent was retracted to a preceding syllable from short medial diphthongs, from reduced vowels in weak position, and from contracting syllables. The syllable which received the accent

109. Stang (1957 [1965]: 9–10); similarly Illič-Svityč (1979: 139–140); Kortlandt (1975: 11, 27: "The laryngeal was analogically eliminated in the barytone forms of mobile paradigms"); cf. Collinge (1985 [1996]: 117–118).
110. Dybo (1971: 84); Garde (1976, 1: 199, 2: 441 n. 272); see also Lehfeldt (1983: 91–92); cf. Hock (2005: 6) with further references; this conception of Meillet's Law was rejected by Kortlandt (1978a: 75).
111. For the material see Illič-Svityč (1979: 134).
112. Rasmussen (1992b [1999]: 474–475) also views Šaxmatov's Law, Vasil'ev–Dolobko's Law and Meillet's Law as one process, viz. the polarisation of the accent between the first and last mora of a word including clitics.
113. Stang (1957 [1965]: 168–170); a similar law was proposed by Ivšić (1911 [1971]: 163–182), cf. Vermeer (1984: 333); Dybo (2000a: 30); for the development of the views of the Moscow Accentological School on Stang's Law see Hendriks (2003).

acquired neoacute tone, e.g. PS prs. 3 pl. **ma˥ganti* (CS **mògǫtь*) > ČAK *mȍrū*, PS nom. sg. **bers˥tu* (CS **bérstъ*) > ČAK *brést*, PS prs. 2 sg. **pū˥tāi̯exei̯* (CS **pytáješi*) > ČAK *pítǎš* (cf. uncontracted RU *pytáeš'*). If the accent was on a medial long diphthong or on a long or short monophthong (except reduced vowels), Stang's Law did not operate, e.g. PS ipv. 2 pl. **pe˥kāi̯te* (CS **pecě́te*) > ČAK *pecȉte*, RU *pekíte*; PS instr. pl. **gāl˥u̯āmī* (CS **golvámi*) > ČAK *glāvȁmi*, RU *golovámi*; PS adj. fem. nom. sg. **ga˥tau̯ā* (CS **gotòva*) > ŠTK *gòtova*, RU *gotóva*.[114]

In the thematic present 2 and 3 singular and 1 and 2 plural of AP *b*, the Common Slavic root-accentuation seen in e.g. ČAK *mȍreš*, *mȍre*, *mȍremo*, *mȍrete* and RU *móžeš'*, *móžet*, *móžem*, *móžete*, cannot be the phonetically regular outcome of PS **ma˥gexei̯*, **ma˥geti*, **ma˥gemu*, **ma˥gete*, since we expect a short medial vowel to retain the accent. As Stang pointed out, these forms are probably analogical to the *i*-verbs,[115] where, in my reinterpretation, PS **na˥sei̯xei̯*, **na˥sei̯ti*, **na˥sei̯mu*, **na˥sei̯te* regularly yielded the Common Slavic accentuation seen in ČAK *nȍsīš*, *nȍsī*, *nȍsīmo*, *nȍsīte*, RU *nósiš'*, *nósit*, *nósim*, *nósite*. The Common Slavic desinential accentuation of RU 1 sg. *mogú* and the root-accentuation of ČAK 3 pl. *mȍrū*, RU *mógut* are the regular reflexes of PS **ma˥gān*, **ma˥ganti*.

4.2. Paradigmatic accent

In Proto-Slavic, declinable words belonged to one of three basic accent paradigms, labelled AP *a*, *b* and *c* by Stang in his *Slavonic accentuation*. While AP *a* and *b* had columnar accentuation, AP *c* was mobile. The two former paradigms reflect the Proto-Balto-Slavic immobile paradigm, the latter reflects the mobile paradigm. The reason for the bifurcation of the Proto-Balto-Slavic immobile paradigm in Slavic was Dybo's Law (see § 4.3 below), according to which the accent was advanced from an accented circumflex syllable to a following syllable. Words belonging to AP *a* and *b* originally had an acute (i.e. long, or possibly glottalised) and a short (i.e. short, or possibly non-glottalised) root-syllable respectively. The three Proto-Slavic accent paradigms may be defined and exemplified in the following way:[116]

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114. Stang (1957 [1965]: 13).
115. Stang (1957 [1965]: 116–118); cf. Hock (2005: 5 with fn. 11).
116. Cf. Stang (1957 [1965]: 179); Illič-Svityč (1979: 75–77); Garde (1976, 1: 21–29); Kortlandt (1978b: 272); Hinrichs (1985: 7); Steensland (1990: 60–61); Hock (1992: 7–8; 2005: 2–3).

a Columnar accentuation on a non-desinential syllable:
nom. sg. *ˈ*kārṵā*, acc. *ˈ*kārṵān* (CS **kőrva*, **kőrvǫ*)
nom.-acc. sg. **ka*ˈ*pūta*, gen. **ka*ˈ*pūtā* (CS **kopýto*, **kopýta*)
nom. sg. **pa*ˈ*dabā*, acc. **pa*ˈ*dabān* (CS **podòba*, **podòbǫ*)
prs. 1 sg. *ˈ*lēzān*, 3 sg. *ˈ*lēzeti* (CS **lĕ̋zǫ*, **lĕ̋zetь*)
b Columnar accentuation on the first syllable of the desinence:
nom. sg. **ge*ˈ*nā*, acc. **ge*ˈ*nān* (CS **ženà*, **ženǫ̀*)
prs. 1 sg. **ma*ˈ*gān*, 3 sg. **ma*ˈ*geti* (CS **mogǫ̀*, **mòžetь*)
c Desinential accentuation alternating with unaccentedness:
nom. sg. **gālˈṵā*, acc. *ˌ*gālṵān* (CS **golvà*, **gôlvǫ*)
prs. 1 sg. *ˌ*girān*, 3 sg. **gire*ˈ*ti* (CS **žb̑rǫ*, **žьrètь*)

Before the operation of Stang's Law (see § 4.1 above), AP *a* and *b* had columnar accentuation in all stem-classes. By contrast, the alternations between unaccented and desinentially accented word-forms in the mobile AP *c* were different for each stem-class.

Nominal system

In the following table the declension of mobile nouns in Proto-Slavic is presented; the examples are PS masc. *o*-stem *ˌ*lāngu* (CS **lǫ̂gъ*), neut. *o*-stem *ˌ*suta* (CS **sb̑to*), *ā*-stem **gālˈṵā* (**golvà*), *i*-stem *ˌ*gasti* (**gȍstь*), *u*-stem *ˌ*sādu* (**sâdъ*). The prehistory of the forms is treated in Ch. 4 § 3.1.[117]

Table 11. Declension of mobile nouns in Proto-Slavic

	o-stem	*ā*-stem	*i*-stem	*u*-stem
		SINGULAR		
nom.	*ˌ*lāngu* / *ˌ*suta*	**gālˈṵā*	*ˌ*gasti*	*ˌ*sādu*
acc.	*ˌ*lāngu* / *ˌ*suta*	*ˌ*gālṵān*	*ˌ*gasti*	*ˌ*sādu*
gen.	*ˌ*lāngā*	**gālˈṵū*	*ˌ*gasteį̄*	*ˌ*sādaṵ*
dat.	*ˌ*lāngāṵ*	*ˌ*gālṵāį̄* → *-ˈṵāį̄*	*ˌ*gasteį̄*	?**sāda*ˈ*ṵeį̄*
instr.	*ˌ*lāngami*	**gālṵa*ˈ*į̄ān*	**gasti*ˈ*mi*	**sādu*ˈ*mi*
loc.	*ˌ*lāngāį̄*	**gālˈṵāį̄*	**gas*ˈ*tēį̄*	**sā*ˈ*dāṵ*
		DUAL		
nom.-acc.	*ˌ*lāngā* / *ˌ*sutāį̄*	*ˌ*gālṵāį̄*	*ˌ*gastī*	*ˌ*sādū*

117. Cf. Stang (1957 [1965]: 62, 74–75, 81, 86 and passim); Garde (1976, 1: 27–28); Dybo (1981: 26–30); Lehfeldt (1993 [2001]: 46–49).

		PLURAL		
nom.	**ˌlāngaį̯ / *suˈtā*	**ˌgālu̯ū*	**ˌgastiį̯e*	**ˌsādau̯e*
acc.	**ˌlāngū / *suˈtā*	**ˌgālu̯ū*	**ˌgastī*	**ˌsādū*
gen.	**lānˈgu*	**gālˈu̯u*	**gastiˈį̯u*	**sādaˈu̯u*
dat.	**lāngaˈmu*	**gālˈu̯āmu*	**gastiˈmu*[a]	?**sādu̯ˈmu*
instr.	**lānˈgū*	**gālˈu̯āmī*	**gastiˈmī*	**sādu̯ˈmī*
loc.	**lāngaį̯ˈxu*	**gālˈu̯āxu*	**gastiˈxu*[b]	**sādu̯ˈxu*

a. Also **ˌgastimu*. b. Also **ˌgastixu*.

Since the accentuation of the nominative singular of the *ī*-stems seen in the present participle PS **beranˈtį̯ī̯*, reflected in UKR *beručý*, ČAK *pekúć*,[118] probably does not represent a form of a mobile paradigm but the outcome of pre-PS **beˈrantį̯ī̯ʔ* by Dybo's Law, I do not take this form into consideration. The *ūs*-stem nominative singular had desinential accentuation, e.g. **su̯eˈkrū*.[119] In the *r*-stem nominative singular we find both *dočí* and *dóči* in Russian dialects.[120] While the long vowels of ŠTK *kćî*, ČAK *hćî*, SLN *hčî* point to Proto-Slavic non-final accentuation, we also find *kćì* in Serbo-Croatian dialects, which points to final accentuation.[121] Most authors reconstruct desinential accentuation, PS **dukˈtī*, in accordance with LI *duktẽ*.[122] This seems to be the most plausible reconstruction. For the long desinence of loc. sg. **ˌlāngāį̯* (CS **lǫ̑gě*) see Ch. 2 § 4.2, "Laryngealistic view".

As for the distribution of nouns among the accent paradigms, an important systematic divergence from our expectations is constituted by Proto-Indo-European root-accented masculine *o*-stems with a short root-syllable. As shown by Illič-Svityč, instead of showing desinential accentuation in Slavic by Dybo's Law, these words seem to have been transfered to the mobile paradigm (see § 5.1 below; for a similar process in Lithuanian see § 1.2 above).[123] According to Illič-Svityč, however, the distinction between desinentially accented and mobile masculine *o*-stems was retained in cer-

118. See Stang (1957 [1965]: 138).
119. Dybo (1981: 26).
120. Stang (1957 [1965]: 91).
121. Stankiewicz (1986b: 400).
122. Illič-Svityč (1979: 131); Dybo (1981: 26); Stankiewicz (1986b: 400); but cf. Stang (1957 [1965]: 176); according to Snoj (2004: 541), the South Slavic forms pointing to CS **dv̆ťi* may be analogical to acc. **dv̆ťerъ*.
123. Illič-Svityč (1979: 99–104); this analogical transfer is referred to as "Illič-Svityč's Law" by Kortlandt (1975: 27–28), Collinge (1985 [1996]: 103–104) and others.

tain Čakavian dialects.[124] On the basis of Illič-Svityč's findings, the Moscow Accentological School has reconstructed a fourth accent paradigm in Common Slavic, AP *d*, which comprises the descendants of Proto-Indo-European root-accented *o*-stems.[125] This paradigm, it is claimed, was characterised by unaccentedness in the nominative-accusative singular and desinential accentuation in the remaining forms.

While it is true that we expect Proto-Indo-European and Proto-Balto-Slavic root-accented masculine *o*-stems to display columnar desinential accentuation in Proto-Slavic, the data that served as the basis of Illič-Svityč's hypothesis seem not to be reliable.[126] Further investigation is therefore needed before it can be settled whether the distinction between Proto-Balto-Slavic root-accented and mobile masculine *o*-stems is preserved in Slavic dialects or the merger of the two types was complete in Proto-Slavic.

The development of the Proto-Indo-European neuter *o*-stems in Slavic is complicated by the phonetic merger of PIE **-os* and **-om* in PS **-u* (CS **-ъ*) and the resulting partial transfer of neuter nouns into the class of masculines.[127] The fact that Proto-Indo-European neuter nouns may have been accented differently in the singular and plural, and the loss of the neuter gender in East Baltic also contribute to the uncertainty. It seems that a number of Proto-Indo-European neuter *o*-stems have become masculine in Slavic, e.g. PIE **dʰu̯órom* > PS **du̯aˈru* AP *b* (CS **dvòrъ*);[128] this applies primarily to words which were root-accented before Dybo's Law. It is hardly surprising that some neuters were transferred to the class of masculines when the reflexes of PIE **-os* and **-om* merged phonetically.[129] Since the original neuter nouns still agreed with neuter pronouns and had distinct neuter forms in the nominative and accusative dual and plural, the pronominal neuter nominative-accusative desinence PS **-a* < PIE **-od* was introduced in a number of neuter *o*-stems.

Since the accentuation of the Slavic neuter *o*-stems seems to follow the same principles as that of the other stems, I assume as a working hypothesis that certain neuters had received columnar accentuation at a pre-stage of

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124. See also Ebeling (1967: 585); Kortlandt (1975: 28); Dybo (1981: 22); Rasmussen (1992b [1999]: 471).
125. Bulatova, Dybo and Nikolaev (1988: 49–62).
126. Johnson (1980: 482–483); Vermeer (1984: 357–361; 2001: 133–147).
127. I regard the development of PIE **-os* > PBS **-as* to PS **-u* (CS **-ъ*) as phonetically regular, see Ch. 4 § 3.1, "Nominative singular".
128. Illič-Svityč (1979: 114–116).
129. Note that Illič-Svityč, following Hirt (1893: 348–349), assumed that only unaccented PIE **-om* yielded CS **-ъ*, whereas accented PIE **-óm* yielded CS **-ó*.

Proto-Balto-Slavic, just like it happened in Vedic and Greek. We may expect that pre-Proto-Balto-Slavic root-accented neuters retained this accentuation in Proto-Balto-Slavic and later yielded AP *a* and *b* in Slavic, while pre-Proto-Balto-Slavic desinentially accented neuters became mobile in Proto-Balto-Slavic (unless affected by Hirt's Law) and yielded AP *c* in Slavic. Some of the neuters joined the masculines in pre-Proto-Slavic. A prominent example of a Proto-Indo-European desinentially accented neuter and its correspondence in Slavic is PIE **k̂m̥tóm* > PS **ˌsuta* AP *c* (CS **sъ̑to*).[130]

The mobile accentuation of neuter *s*-stems in Slavic, e.g. PS nom.-acc. sg. **ˌneba*, nom.-acc. pl. **nebeˈsā*,[131] is surprising when we consider that these stems had columnar root-accentuation in the proto-language, e.g. VED *nábhaḥ*, pl. *nábhāṁsi*, GK *νέφος*, pl. *νέφεα* etc. Slavic seems to indicate that for some reason these stems secondarily received desinential accentuation. Since the neuter *s*-stem desinence PIE **-os*, which would regularly yield PS **-u* (CS **-ъ*), was replaced by the distinct neuter desinence **-a* in pre-Proto-Slavic, I shall not refer to this form in the analysis of the development of the paradigmatic accent mobility in Ch. 4 § 3.

Verbal system

In the athematic present, the Slavic languages point to columnar desinential accentuation in the paradigms represented by OCS *jesmь*, *damь* and *jamь*, i.e. PS 1 sg. **esˈmi*, 2 sg. **eˈsei̯*, 3 sg. **esˈti*; 1 pl. **esˈmu*, 2 pl. **esˈte*, 3 pl. **sanˈti*.[132] In this verb the desinential accentuation may be the result of the operation of Dybo's Law on a Proto-Balto-Slavic paradigm with initial accentuation, i.e. PBS 1 sg. **ˈesmi*, 2 sg. **ˈesi*, 3 sg. **ˈesti*; 1 pl. **ˈesmas*, 2 pl. **ˈeste*, 3 pl. **ˈsanti*, reflecting the initial accentuation of PIE 1 sg. **h₁ésmi*, 2 sg. **h₁ési*, 3 sg. **h₁ésti*; 1 pl. **h₁smós*, 2 pl. **h₁sté*, 3 pl. **h₁sénti* (> VED *ásmi*, *ási*, *ásti*, *smáḥ* (*smási*), *sthá*, *sánti*) with spread of **ˈes-* from the singular to the 1 and 2 plural. The long root-vowels of *damь* and *jamь* would prevent an accent advancement by Dybo's Law such as the one that operated in *jesmь*; instead, we would expect acute root-accentuation in these presents. I assume that the desinential accentuation of *damь* and *jamь* was introduced

130. Cf. the alternative view presented in Illič-Svityč (1979: 104–107).

131. For the reconstruction see Stang (1957 [1965]: 94–95); Illič-Svityč (1979: 131).

132. Stang (1957 [1965]: 125–128); see also (1966a: 451). Because of the uncertainty of the original accentuation of OCS *vědě* / *věmь* and the complicated prehistory of OCS *imamь*, these verbs will be left out of the discussion.

by analogy with the accentuation of *jesmь*.[133] There seems to be no traces of original paradigmatic mobility in the athematic presents.

The following table shows the accent paradigms of the Proto-Slavic thematic present and imperative (the latter reflecting Proto-Indo-European optative forms)[134] and the sigmatic and thematic aorists of mobile verbs:[135]

Table 12. Conjugation of mobile verbs in Proto-Slavic

	THEM. PRS.	IPV.	SIGM. AOR.	THEM. AOR.
		SINGULAR		
1 sg.	*ˌ*supān*	–	(*mě̆rˈxu*)	(*sa̋u̯ˈxu*)
2 sg.	*supeˈxei̯*	*suˈpai̯	*ˌmertu	*ˌsupe
3 sg.	*supeˈti*	*suˈpai̯	*ˌmertu	*ˌsupe
		PLURAL		
1 pl.	*supeˈmu	*suˈpāi̯me	(*mě̆rˈxame)	(*sa̋u̯ˈxame)
2 pl.	*supeˈte	*suˈpāi̯te	(*mě̆rsˈte)	(*sa̋u̯sˈte)
3 pl.	*supanˈti	–	(*mě̆rˈxen)	(*sa̋u̯ˈxen)

The sigmatic aorist forms had columnar desinential accentuation in Proto-Slavic, probably reflecting a Proto-Indo-European paradigm with initial accentuation (see below). Verbs with a fully inflected thematic aorist had either AP *a* or AP *b*.[136] The only forms that reflect Proto-Indo-European desinential accentuation are found in the sigmatic aorist paradigms, where the 2 and 3 singular forms continue Proto-Indo-European asigmatic forms (injunctives, thematic aorists, root aorists etc.).

Štokavian forms like 1 sg. *klȇh*, *mrȉjeh*, *dònijeh*, 1 pl. *klésmo*, *mrijèsmo*, 2 pl. *kléste*, *mrijèste*, 3 pl. *kléše*, *mrijèše* indicate that the forms of the sigmatic aorist were accented on the syllable following the root in Proto-Slavic (for the 2 and 3 singular see below). The attested forms do not reveal whether the accent was on the first syllable following the root or on the final syllable of the word; that is, we do not know whether the paradigm was of the *b* or *c* type. Vedic indicates original root-accentuation in the sigmatic aorist. This is indirectly supported by aorist forms like ŠTK 1 sg. *grȉzoh*, pointing

133. The desinential accentuation of *damь* is also regarded as analogical to *jesmь* by Klingenschmitt (1994: 249); cf. Kim (2002: 207 fn. 23).

134. For the short diphthong of the imperative 2 and 3 singular, see Ch. 4 § 3.1, "Optative"; for PS *-*ai̯* > CS *-*i* see Ch. 2 § 4.2, "Laryngealistic view".

135. Note that in older works on Slavic accentuation, verbs like RU *mogú*, *móžeš'* are sometimes referred to as "mobile"; while understandable from a synchronic point of view, this terminology is diachronically inappropriate.

136. Dybo (1961: 37).

to PS *ˈ*grūzsu* (CS **gryźsъ*); original desinential accentuation would probably have yielded PS †ˌ*grūzsu* (CS †*gryźsъ*), ŠTK †*grîzoh*. As for the ablaut grade of the root, in Ch. 2 § 1.3 we saw that Vedic has long grade, full grade and zero grade in various forms. In roots ending in a resonant, it cannot be decided whether e.g. ŠTK 1 sg. *klêh*, *mrȉjeh* (CS **klęxъ̀*, **merxъ̀*) reflect PS **klēnˈsu*, **mērˈxu* with a long or **klenˈsu*, **merˈxu* with a short root-vowel.[137] In the *s*-aorist of roots ending in an obstruent, however, Slavic had generalised the lengthened grade, e.g. OCS 1 sg. *nĕsъ*, *tĕxъ*, *vĕsъ* from PS **nēsˈsu*, **tēˈxu*, PS **u̯ēdˈsu*.

The non-initial accentuation of the sigmatic aorist in Proto-Slavic may be phonetically regular if we accept Kortlandt's view that Proto-Indo-European plain long vowels became circumflex in Proto-Balto-Slavic (see § 5.1 below).[138] In this case, aor. 1 sg. PIE **u̯ḗdʰsm̥* yielded circumflex PBS *ˈ*u̯ēdsin*, which by Dybo's Law became PS **u̯ēdˈsu* (CS **vésъ*). If, on the other hand, the regular reflex of Proto-Indo-European plain long vowels is an acute in Proto-Balto-Slavic, as is traditionally maintained, we do not expect the accent to be advanced to the final syllable by Dybo's Law in Slavic. In this case the final accentuation of the aorist may have been introduced by analogy with the infinitive: PS inf. **nesˈtēi̯* (CS **nesti*): aor. 1 sg. *ˈ*nēssu* → PS **nēsˈsu* (CS **nésъ*, ŠTK *dò-nijeh*);[139] cf. acute PS inf. *ˈ*grūztēi̯* (CS **gryźsti*): aor. 1 sg. *ˈ*grūzsu* (CS **gryźsъ*).[140] In Štokavian the accentuation of the sigmatic aorist forms is still synchronically derivable from that of the infinitive.[141]

The Slavic aorist 2 and 3 singular take the desinence **-e* if formed from a root ending in an obstruent, and **-Ø* or **-tu* if formed from a root ending in a vowel or resonant, e.g. *ˌ*supe* vs. *ˈ*gēn* vs. *ˌ*mertu* (CS **sъ̈pe* vs. **žę̑* vs. **mêrtъ*). While the first type has the desinences of the Proto-Indo-European thematic aorist or injunctive, i.e. PIE 2 sg. **-es*, 3 sg. **-et*, the second type

137. Cf. Kortlandt (1975: 22) and Stang (1942: 64) (long) vs. Rasmussen (1992b [1999]) (short).
138. Kortlandt (1988b: 300); see also Hollifield (1980: 26–27 fn. 14).
139. As the reconstruction of the accentuation of the aorist is based on material from a contiguous South Slavic area (see Dybo 2000b: 551), this may be a post-Proto-Slavic dialectal development.
140. An alternative explanation is offered by Rasmussen (1992b [1999]: 484), who assumes that the apparently circumflex root-syllable of *dònijeh* had been imported from monosyllabic forms such as the reflex of PIE 3 sg. **u̯ḗĝʰ-s-t*, with regular circumflex tone.
141. Stang (1957 [1965]: 128, 133). Despite Kortlandt's statement to the opposite (2006a: 365), this argument is, in my opinion, not invalidated by the circumstance that the infinitive was influenced by the aorist at a later language stage.

probably reflects the sigmatic aorist, and the third type reflects the athematic (root) aorist or injunctive.[142] As van Wijk has shown, in roots ending in a vowel or resonant there is a correlation between long accented root and zero-desinence vs. unaccented root and desinence *-*tu*.[143] Because of the unknown provenience of *-*tu* I shall not take forms of the type *¦*mertu* further into consideration.[144]

As for the distribution of the Slavic verbs among immobile and mobile paradigms, in accordance with the Vedic evidence we expect thematic presents with full grade of the root to be root-accented in the proto-language, yielding AP *a* or *b* in Slavic, while presents with zero grade of the root and desinential accentuation would regularly receive AP *c*. Leaving aside verbs with AP *a*, what we find is the unexpected distribution that most verbs with full grade of the root belong to AP *c* in Slavic, while verbs with zero grade have either AP *b* or *c*.[145] The apparent redistribution of the verbal accentuation system of Slavic may be related to that of Lithuanian.

I shall confine myself to commenting on a group of plain thematic presents with full grade of the root and an infinitive in PS *-*ātēi̯* (CS *-*ati*).[146] In East Slavic, Čakavian and Bulgarian these verbs have AP *c*, e.g. RU 2 sg. *berëš'*, *derëš'* (inf. *brát'*, *drát'*), UKR *peréš* (inf. *práty*); ČAK *berȅš*, *derȅš, perȅš* (inf. *brȁt*, *derȁt*, *prȁt*); BG *beréš*, *deréš*, *peréš*. In Štokavian, on the other hand, we find reflexes of AP *b*, e.g. *bȅrēš*, *dȅrēš*, *pȅrēš* (inf. *brȁti*, *prȁti*); original AP *b* is also indicated by the long root-vowel of Old CZ *béřeš*, *déřeš*, *péřeš* (but modern CZ *bereš*, *dereš*, *pereš*; inf. *brát*, *drát*, *prát*), and by the short desinential vowel of SLK *bereš*, *dereš*, *pereš* (beside *berieš*, *derieš*, *perieš*; inf. *brať*, *drať*, *prať*).[147] While it is usually assumed that the original state of affairs is preserved in the languages which show AP *c* in these presents,[148] from a purely Slavic point of view the conclusion could also be reached that AP *b* is original and AP *c* represents an innovation. This would agree with the view endorsed here that Balto-Slavic paradigmatic mobility in both nouns and verbs reflects Proto-Indo-European desinential accentuation. I shall leave this question unsolved, retaining the traditional reconstructions with AP *c*.

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142. Stang (1942: 63–69).
143. Van Wijk (1926); cf. Stang (1942: 65; 1957 [1965]: 134–135); Reinhart (1992: 370–371).
144. For a discussion of *-*tu* see Stang (1942: 65–73, 219–222).
145. Cf. Dybo (1981: 203–205, 208–209).
146. Cf. Stang (1957 [1965]: 117), from where the Old Czech forms are quoted.
147. For the Slovak evidence see Stang (1952 [1970]).
148. E.g. Leskien (1914: 516); Stang (1957 [1965]: 117); cf. the somewhat confusing presentation of Bulatova (1975: 164 (*dërēm*), 167 (*përēm*), 168 (*bërēm*)).

4.3. Dybo's Law

Analysing the tripartite Proto-Slavic accentual system that Stang had established, Dybo and Illič-Svityč observed that disyllabic nouns and verbs belonging to the two Common Slavic immobile accent paradigms, AP *a* and *b*, were in complementary distribution: words with AP *a* have a historically acute root-syllable, words with AP *b* have a non-acute root-syllable.[149] In order to explain this observation diachronically, the Soviet scholars maintained that an accent law had split the originally root-accented words in two groups by advancing the accent from an accented non-acute root-syllable to a following syllable. Complementing Illič-Svityč's study of the accentuation of Baltic and Slavic nouns (1963), Dybo showed in a number of publications the effects of the accent advancement in nominal and verbal morphology and derivation.[150] Although the accent advancement, which is usually referred to as "Dybo's Law", was rejected by an authority like Stang,[151] it is now generally accepted, albeit in somewhat different versions.[152] Garde's assumption that Dybo's Law took place only in East and South Slavic, leaving West Slavic unaffected, meets difficulties and has not gained acceptance.[153] For

149. Dybo (1962a: 225; 1962b: 3–9 and passim; 1968: 148); Dybo and Illič-Svityč (1963: 74–77); Illič-Svityč (1979: 81); see also Dybo (1958: 57 fn. 1).
150. See above all his monograph *Славянская акцентология* [Slavic accentology] (1981).
151. Stang (1966a: 288–289 fn. 2); see also Johnson (1980); Mathiassen (1983); Klingenschmitt (1993: 3): "Das 'Dybosche Gesetz' entfällt. Gegenbeispiele sind etwa **v\|ečerъ* < **u̯éku̯(sp)ero-*, **j\|ezero* < **\|ežera-*." (but cf. Rasmussen 1992b [1999]: 476 fn. 8). A prominent alleged counterexample to Dybo's Law, CS **bělъ* AP *b*, is given an alternative etymology in Olander (forthc. b).
152. E.g. Ebeling (1967: 585–586, 590–591); Kortlandt (1975: 14; 1978b: 272–273; 1983a: 34–39), criticising the formulations of the law by Dybo, Illič-Svityč, Ebeling, Garde, and Halle and Kiparsky; Halle and Kiparsky (1981: 175); Vermeer (1984: 333–334, 337–356); Collinge (1985 [1996]: 31–33); Derksen (1991: 53–55); Rasmussen (1992b [1999]: 469–470, 475–479); Lehfeldt (1993 [2001]: 43–51); Holzer (1998: 41); cf. Derksen (2004: 85–87); Hock (2005: 7–8); Andersen (forthc. § 8 with fn. 14). An attempt to substitute Dybo's Law in Slavic by an accent retraction in Lithuanian was made by Darden (1984: 107–108); in Kim (2002: 130–138), Hirt's Law and Dybo's Law are combined into one pre-Proto-Balto-Slavic accent retraction.
153. Garde (1973; 1976, 1: 16–17, 208–212, 2: 430 n. 20, 442–443, nn. 284–290); Garde refers to the accent advancement as "loi d'Illič-Svityč". First of all the fact that a Slovincian accent retraction is inevitable in forms like nom. sg. *glu̯o̯vă*, gen. *glu̯o̯vä* (< PS **gāl\|u̯ā*, **gāl\|u̯ū*) etc. makes it hard to understand Garde's

the idea that Dybo's Law in Slavic and Saussure's Law in Lithuanian have a common core, see § 1.3 above. Note also the recent assumption of the Moscow Accentological School that Dybo's Law was a step-wise process and that Stang's Law may be eliminated from the theory of the development of the Slavic accentuation system.[154]

To explain why Dybo's Law operated in the root-accented paradigm but not in the mobile one, i.e. why a form like acc. sg. **grę̂dǫ* AP *c* did not develop into CS †*grędǫ̀*, Illič-Svityč pointed to the influence of prepositional phrases.[155] In initially accented word-forms of the mobile paradigms the accent was retracted to the preposition by Šaxmatov's Law (see § 4.1 above), e.g. **vъ̀ grędǫ* (cf. acc. sg. **grę̂dǫ* AP *c*), whereas in words with columnar root-accentuation it remained on the root-syllable, e.g. **vъ lǫ̂kǫ* (cf. **lǫ̂kǫ* AP *b*). Here the underlying difference between the two types of accentuation surfaced, and the accent advancement took place only in the latter type, i.e. **vъ lǫ̂kǫ* > CS **vъ lǫkǫ̀*. Subsequently, the new accentuation spread analogically to occurrences without a preposition, i.e. **lǫ̂kǫ* → CS **lǫkǫ̀*, and to the remaining forms of the paradigm, e.g. nom. sg. **lǫ̂ka* → CS **lǫkà*.[156]

Ebeling viewed Dybo's Law as a development whereby "[t]he stressed initial short or falling syllables in mobile paradigms get another intonation

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statement that "[l]e mouvement d'accent supposé par Kuryłowicz (**troụbá* > *tróụba*, etc.) serait un recul sur une pénultième initiale QUI N'EST PAS ATTESTÉ PAR AILLEURS EN KACHOUBE." (1973: 163, my emphasis); for further criticism of Garde's formulation of Dybo's Law see Kortlandt (1975: 34–37; 1978a: 76–80).

154. Dybo, Zamjatina and Nikolaev (1993a: 15–16); cf. Lehfeldt (1993 [2001]: 28–29); Hendriks (2003); Hock (2005: 8–9).

155. Illič-Svityč (1979: 143–144).

156. Cf. Dybo's interesting account of Illič-Svityč's interpretation of the change (1987: 500): "фонетическая интерпретация процесса, приведшего к появлению акц. парадигмы *b*, как процесса передвижения ударения вправо в позициях сочетания соответствующих словоформ с предлогами, […] была, по-видимому, продиктована стремлением избежать слишком решительного разрыва с традиционным представлением о характере праславянских интонаций и являлась определенным шагом назад от первичной интерпретации" ["when the process that gave rise to accent paradigm *b* was interpreted phonetically as a rightward movement in positions where the relevant word-forms were combined with a preposition, it was apparently dictated by a desire to avoid a too definite break with the traditional understanding of the character of the Proto-Slavic intonations, and it was certainly a step backward compared with the original interpretation"].

(x̂ or x̏) than short or falling syllables in ALL other positions (x᾽ or x̄᾽)."[157] At a later stage, the "x᾽" syllables lose the accent to a following syllable.[158] Rasmussen simply states that "Immobilia mit nichtakutierter Wurzel verschieben den Iktus auf die Folgesilbe".[159] As I have tried to argue in Ch. 1 § 5, I find it wrong in principle to restrict phonetic laws of this type to certain morphological environments. According to Kortlandt, "rising vowels lost the stress to the following syllable, if there was one".[160]

Garde assumed an actual phonetic difference, inherited from Proto-Balto-Slavic, between the initial syllable of non-desinentially accented word-forms of the mobile paradigms, e.g. acc. sg. **grędǫ* AP *c*, and the initial syllable of words belonging to the immobile paradigms, e.g. acc. sg. **lǫkǫ* AP *b*.[161] The accent advancement only affected words of the latter type. Combined with the interpretation of the former word-forms as unaccented in Common Slavic, the obvious conclusion may be drawn that Dybo's Law did not affect mobile words for the reason that the accent advancement only affected syllables with a phonological accent.[162] The interpretation of Dybo's Law as a morphologically unrestricted accent advancement from an accented circumflex syllable to a following syllable is, in my opinion, the correct one. If the distinction between acute and circumflex syllables was realised as a distinction between (long) glottalised and (long or short) non-glottalised syllables (see § 5.1 below), after Dybo's Law the glottalisation disappeared and long glottalised vowels merged with long non-glottalised vowels. At this stage there were only two relevant prosodic distinctions: long vs. short, and accented vs. unaccented.

It seems that Dybo's Law affected ALL accented non-acute syllables, regardless of their position in the word. Rasmussen has shown that there was an accent advancement not only in phrases like **nakˈti si* > PS **nakti ˈsi* (CS **notʲь sь*) > ŠTK *nòćas*, but also in medially accented forms like prs. 2 pl. **neˈsete* > PS **neseˈte*.[163] As I have argued at an earlier occasion,[164] elaborating a proposal by Rasmussen, this circumstance is crucial for a correct under-

157. Ebeling (1967: 586, emphasis as in original); cf. the similar explanation of Dybo (1962b: 8–9).
158. Ebeling (1967: 590).
159. Rasmussen (1992b [1999]: 469).
160. Kortlandt (2006b: 30); the rising vowels are a result of Pedersen's Law II.
161. See Kortlandt (1983a: 37 fn. 9); similarly Dybo (1981: 39–54).
162. Thus Garde (1976, 1: 213).
163. Rasmussen (1992b [1999]: 478); see also Andersen (forthc. § 8 with fn. 14) and Ch. 4 § 2.3.
164. Olander (2004); see also (2007c).

standing of the development of the accent curves of the mobile paradigms. Before the operation of Dybo's Law, the accent was on the first syllable of the desinence in desinentially accented forms of the mobile nominal and verbal paradigms, e.g. pre-PS instr. pl. **gas*ˈtimīˀ*, prs. 2 pl. **neˈsete*. This accentuation was inherited from Proto-Balto-Slavic and Proto-Indo-European, cf. VED instr. pl. *matíbhiḥ*, prs. 2 pl. *tudátha*. When Dybo's Law operated, the accent advanced to the final syllable: the types PS **gastiˈmī*, **neseˈte* yielded RU *ljud'mí*, SLN *kostmí*, SLNC *lẽʒmĩ́*; UKR *neseté*, BRU *nesjacé*, ČAK *pečetȅ*. If the accented first syllable of the desinence was acute when Dybo's Law operated, the form remained unchanged: PS instr. pl. **galˈu̯āmī*, loc. pl. **gālˈu̯āxu* > RU *golovámi*, ČAK *glāvȁmi*, SLN *gorâmi*; ČAK *glāvȁh*, SLN *goràh*.

The question of the prosodic properties of the syllable which received the accent by Dybo's Law is often left unmentioned. I assume that no other prosodic changes took place than the accent advancement itself, apart from the general disappearance of the distinction between glottalised and non-glottalised vowels after Dybo's Law (if not earlier; see § 5.1 below). When a long syllable received the accent, it remained long, e.g. pre-PS nom. sg. **ˈgenāˀ*, dat. pl. **ˈgenāˀmu*, ipv. 2 pl. **ˈi̯udāˀi̯te*[165] > PS **geˈnā*, **geˈnāmu*, **i̯uˈdāi̯te* (CS **ženà*, **ženắmъ*, **jьdě́te*). When a short syllable received the accent, it remained short, e.g. pre-PS nom. sg. **ˈdu̯aru*, nom.-acc. sg. **ˈsela*, instr. sg. **ˈselami*, fem. nom. sg. **ˈgatau̯āˀ*, loc. pl. **ˈselai̯xu*, prs. 3 pl. **ˈmaganti* > PS **du̯aˈru*, **seˈla*, **seˈlami*, **gaˈtau̯ā*, **seˈlai̯xu*, **maˈganti*. In most cases the accent remained on the short syllable in Common Slavic, e.g. CS **selò*, **selòmъ*, **gotòva*; but when the accent was on a short medial diphthong or on a reduced vowel, it was retracted by Stang's Law to the originally accented syllable, which received neoacute tone, e.g. CS **dvòrъ*, **sèlěxъ*, **mògǫtъ*.

5. Proto-Balto-Slavic

The Proto-Indo-European prosodic system was reshaped in a number of ways in its development to the Proto-Balto-Slavic system reconstructed on the basis of the Baltic and Slavic languages. For a brief discussion of the assumption of a Balto-Slavic proto-language see Ch. 1 § 3, "Periodisation".

165. The reconstruction of the present stem of the Slavic verb meaning 'go' as PS **i̯ud-*, not **id-* as traditionally, is based on a suggestion by Anders Richardt Jørgensen (pers. comm.) that the verb is related to LI *judẽti* 'move', prs. 1 sg. *judù*, from the PIE root **ḫi̯eu̯dʰ-* 'move'; the infinitive stem PS **ei̯-* is from PIE **h₁ei̯-* 'go'.

For the question which concerns us here, i.e. the Balto-Slavic paradigmatic accentuation system, the most significant development was the Mobility Law, which is the subject of Ch. 4. Other important prosodic developments such as Hirt's Law, Winter's Law and the loss of laryngeals did not affect the system of paradigmatic mobility and may thus be treated more briefly; see § 5.1 below.

The Proto-Balto-Slavic segmental system comprised thirteen consonants: six stops, **p b t d k g*; three fricatives, **s ś ź*;[166] four sonorants, **r l m n*. The vowel system included four short vowels, **i e a u*, and five long vowels, **ī ē ā ō ū*. The high vowels **i u* had the non-syllabic allophones **i̯ u̯* when contiguous to other vowels.

5.1. Prosodic system

Proto-Balto-Slavic had a free accent and distinctive quantity; the prosodic system comprised unaccented word-forms. It is likely that the realisation of the accent primarily involved pitch, accented syllables being characterised by high pitch as opposed to the low pitch of unaccented syllables. It should be noted that pitch was unrelated to the distinction between acute and circumflex syllables (see below in this subsection). If a word-form containing only syllables with low pitch, i.e. an unaccented word-form, was followed by an enclitic, the enclitic received an automatic ictus. If there was no enclitic, the automatic ictus was placed on the leftmost proclitic or, if there were no proclitics, on the initial syllable of the morphological word-form. The class of phonologically unaccented word-forms (see below in this subsection), which alternated with desinentially accented word-forms in the mobile accent paradigms, is reconstructed for Proto-Balto-Slavic mainly on the basis of Slavic evidence (see § 4.1 above), but certain phenomena in both Latvian (§ 2.1) and Old Prussian (§ 3.1) are more easily explained with reference to unaccented word-forms; remnants of it are also found in Lithuanian (§ 1.1).[167] The Balto-Slavic Mobility Law, which is the main subject of Ch. 4, provides a natural diachronic explanation of the unaccented word-forms in pre-Proto-Balto-Slavic.

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166. PBS **ś* and **ź*, reflecting PIE **ḱ* and **ǵ*/**ǵʰ*, may have been affricates in Proto-Balto-Slavic; the phoneme */s/ had an allophone *[š] after */i u r k/.

167. Unaccented word-forms in Proto-Balto-Slavic are also assumed by Garde (1976, 1: 7–13, 2: 429 n. 15); Dybo (1981: 54); see also Young (1994: 106).

An important counterargument to the hypothesis that unaccented word-forms existed already in Proto-Balto-Slavic was put forward by Kortlandt.[168] Since Illič-Svityč's (1963) monograph on Baltic and Slavic nominal accentuation it has been generally agreed that Proto-Balto-Slavic root-accented masculine *o*-stems with a short root-syllable have analogically joined the mobile accent paradigm in most or all Slavic dialects instead of acquiring columnar accentuation on the first syllable following the root in accordance with Dybo's Law (see § 4.2 above, "Nominal accentuation"). For instance, the reflex of PIE **ĝómbʰos* (cf. VED *jámbha-*, GK *γόμφος* and LI *žam̃bas*, attested with AP 2) is apparently not PS †*zan˩bu* AP *b* as we would expect, but *˩*zanbu* with AP *c* just like originally desinentially accented words, e.g. PS *˩*drau̯gu* < PIE **dʰrou̯gʰós* (cf. LI *draũgas* AP 4). Now, according to Kortlandt, this analogical transfer to the mobile accent paradigm is difficult to imagine in a system where root-accented forms like pre-PS *˩*zanbu* differed prosodically from unaccented forms like *˩*drau̯gu*; but it is easily understandable in a system like Kortlandt's where these words were prosodically identical in all forms of the singular.

Apart from the fact that after the operation of Dybo's Law some case forms of AP *b* and *c* were identical, e.g. gen. pl. **zan˩bu* and **drau̯˩gu*, it should be noted that substantial coincidence of the accent curves of two paradigms is not a necessary prerequisite for the transfer of lexemes among the paradigms. In the history of Lithuanian, for instance, immobile adjectives become mobile on a large scale,[169] e.g. Old LI *brą́gus* AP 1 → modern LI *brangùs* AP 3, despite the fact that the actual points of coincidence between the accent curves of the two paradigms are very few. In Greek, all desinentially accented *i*-stems have become root-accented. Therefore I do not regard this argument against unaccented word-forms in Proto-Balto-Slavic as compelling.

The Proto-Balto-Slavic prosodic system also included a distinction between two types of long vowels.[170] The phonetic properties of the distinction is of minor interest for our purposes; it may, for instance, have consisted in the presence or absence of glottalisation of the vowel.[171] In final position this distinction is shown by the fact that one type of long final vowels, the acute, attracted the accent by Saussure's Law in pre-Lithuanian and was shortened by Leskien's Law (see § 1.3 above), while the other type, the cir-

168. Kortlandt (1978a: 75; 1983a: 32).
169. Stang (1966a: 302).
170. Cf. Stang (1975: 46).
171. Cf. Stang (1966a: 137).

cumflex, did not attract the accent and remained long. The former type, written *$\bar{V}$ʔ in the reconstructions, reflects PIE *$V(\underline{i})h$ in a final syllable, e.g. PIE nom. sg. *$\underset{\sim}{u}\acute{o}\underline{i}tah_2$ > PBS *$^{|}\underset{\sim}{u}a\underline{i}t\bar{a}$ʔ > LI *vietà* AP 2; the latter type, written *$\bar{V}$ in the reconstructions, reflects final PIE *$V(h)V$ and *$\bar{V}$ not followed by a laryngeal, e.g. PIE nom. pl. *$\underset{\sim}{u}\acute{o}\underline{i}tah_2as$ > PBS *$^{|}\underset{\sim}{u}a\underline{i}t\bar{a}s$ > LI *viẽtos*.

In non-final syllables, the question of the existence of two types of long syllables in Proto-Balto-Slavic is related to the question of the reflex of Proto-Indo-European plain long vowels in Proto-Balto-Slavic. If plain long vowels had a reflex that was prosodically distinct from long vowels reflecting vowel plus laryngeal and long vowels resulting from Winter's Law, Proto-Balto-Slavic would logically have two prosodically distinct types of long vowels. In § 1.3 above I concluded, on the basis of the Lithuanian nominative singular forms *armuõ*, *duktẽ* from PIE *-*ō*, *-*ē*, that in final syllables the Proto-Indo-European plain long vowels are reflected as non-acute vowels in Proto-Balto-Slavic and Lithuanian, differing from long vowels originating from vowel plus laryngeal. We would, *ceteris paribus*, expect the same distribution in non-final syllables, i.e. a prosodic distinction in Proto-Balto-Slavic and Lithuanian between (1) the reflexes of Proto-Indo-European plain long vowels and (2) long vowels from vowel plus laryngeal and from Winter's Law.

Traditionally, however, it is assumed that plain long vowels become acute in Balto-Slavic, merging with long vowels of laryngeal origin and from Winter's Law.[172] Kortlandt, on the other hand, has suggested that plain long vowels become circumflex in Balto-Slavic.[173] It is one of his merits to have drawn attention to the question of the Balto-Slavic outcome of the Proto-Indo-European plain long vowels. Although this question is of little relevance to the question of the prehistory of the Balto-Slavic mobile accent paradigms and does not have any influence on my hypothesis of a phonetic accent loss in syllables of a certain structure in pre-Proto-Balto-Slavic, it plays a role in the reconstruction of the Proto-Balto-Slavic prosodic system.

The evidence concerning the outcome of Proto-Indo-European plain long vowels in non-final position in Proto-Balto-Slavic is ambiguous. In his monograph *Slavic accentuation* (1975), Kortlandt presents a list of words which, in his opinion, supports his view that Proto-Indo-European plain long vowels

172. E.g. Rasmussen (1989b: 160–161; 1992b [1999]: 480–483); see also Hock (2003: 25–26).

173. Kortlandt (1978b: 280 with fn. 10; 1985; 1997); similarly Kim (2002: 115–116); a report of the debate is given in Hock (2004: 20–21).

received a circumflex tone in Baltic and Slavic.[174] However, as Kortlandt is well aware,[175] most examples of lengthened grade vowels in Baltic and Slavic do not seem to go back to the Indo-European proto-language. We should therefore not attach too much importance to the number of items on the list, but focus on the rather few morphologically clear examples of Proto-Indo-European plain long vowels (a rare species in the proto-language) with reflexes in Baltic and Slavic.

An argument in favour of the assumption that Proto-Indo-European plain long vowels became non-acute in Balto-Slavic is constituted by the sigmatic aorist in Slavic (see § 4.2 above, "Verbal system"). This type contains a Proto-Indo-European long non-laryngeal vowel and appears with final accentuation in Proto-Slavic, e.g. PIE **u̯ḗdʰsm̥* > PS **u̯ēdˈsu* (CS **vě́sъ*). If phonetically regular, the final accentuation in Slavic shows that the accent was advanced from the first syllable to the desinence by Dybo's Law (§ 4.3 above); and since Dybo's Law does not affect the reflexes of PIE **Vh*, **V(R)ə* and **V(D)*, this would mean that when Dybo's Law took place in pre-Proto-Slavic, the reflex of PIE **V̄* was still distinct from the reflexes of **Vh*, **V(R)ə* and **V(D)*. It is possible, however, that the final accentuation in Proto-Slavic is analogical.

Another relatively clear example of a Proto-Indo-European plain long vowel is LI *žvėrìs* AP 3, LV *zvęĕrs*, PS **ˌzu̯ēri* AP *c* (CS **zvȇrь*), which points to a Proto-Balto-Slavic long acute root vowel. Since Hirt's Law (see below in this subsection) has not affected the word, the root probably did not contain a laryngeal in Proto-Indo-European, and the Baltic and Slavic forms reflect PIE **ĝʰu̯ēr-*. This example thus lends direct support to the traditional view that plain long vowels became acute in Balto-Slavic.[176] Similarly, the word LI *várna* AP 1, LV *vãrna*, PS **ˈu̯ārnā* AP *a* (CS **vőrna*), which is a *vr̥ddhi* formation to the root found in LI *varñas* AP 4, PS **ˌu̯arnu* AP *c* (CS **vôrnъ*), points to acute tone as the regular Balto-Slavic reflex of Proto-Indo-European plain long vowels.[177] For further arguments in favour of both views

174. Kortlandt (1975: 72–75).
175. Kortlandt (1975: 72); see also Larsson (2004b).
176. Kortlandt (1975: 54) originally assumed that the acute tone of this word is not original; Derksen (2008: 550), who follows Kortlandt's view on the reflexes of long vowels in Balto-Slavic, suggests a Proto-Indo-European reconstruction containing a laryngeal; this view is accepted by Kortlandt (pers. comm.).
177. Cf. the alternative explanation of Kortlandt (1985: 121), accepted by Derksen (2008: 528).

I refer the reader to the discussion between Rasmussen, who supports the traditional view, and Kortlandt.[178]

To conclude, there are systemic reasons (evidence from final syllables) to assume that Proto-Indo-European plain long vowels are reflected as non-acute long vowels in Proto-Balto-Slavic. On the other hand, there are examples that point in the opposite direction, suggesting that plain long vowels merged prosodically with long vowels of laryngeal origin and long vowels from Winter's Law. Since, as mentioned above, this question only marginally affects the problem of paradigmatic mobility in Balto-Slavic, I prefer to leave the question open.[179] In the Proto-Balto-Slavic reconstructions I distinguish the reflexes of PIE **Vh*, **V(R)ə* and **V(D)* from the reflexes of PIE ** $\bar{V}$* (as PBS ** $\bar{V}$ʔ* and ** $\bar{V}$* respectively).

It should be mentioned that if we accept the view that Proto-Indo-European plain long vowels merge with long vowels of laryngeal origin and long vowels from Winter's Law, then all Proto-Balto-Slavic non-final syllables containing a long vowel are glottalised, and all non-final syllables containing a short vowel are non-glottalised. This means that the glottalisation feature would be directly derivable from quantity, i.e., glottalisation would be a redundant feature in non-final syllables. If this view is correct, the traditional distinction between acute and circumflex syllables in Proto-Balto-Slavic may simply be viewed as one between long and short syllables,[180] e.g. PBS acc. sg. **ˈlēʔi̯pān* (with a long, redundantly glottalised, vowel in the initial syllable) > LI *líepą* AP 1, LV *liẽpu*, PS **ˈlēi̯pān* AP *a* (CS **lĭ́pǫ*) vs. PBS acc. sg. **u̯aˈi̯tān* (with a short vowel in the initial syllable) > LI *viẽtą* AP 2, LV *vìetu*, the type PS **u̯alˈkān* AP b (CS **volkǫ̀*).

Although, as we have just seen, it cannot be ruled out that glottalisation was a phonologically redundant feature in Proto-Balto-Slavic non-final syllables, I refer to the reflexes of PIE **Vh*, **V(R)ə* and **V(D)* (and, possibly, ** $\bar{V}$*) in Proto-Balto-Slavic as "glottalised" or "acute", while Proto-Balto-Slavic short vowels (and, possibly, the reflex of PIE ** $\bar{V}$*) are referred to as "non-glottalised" or "circumflex".

The preceding analyses imply that in Proto-Balto-Slavic the initial syllables of the following four words (typical correspondences in the accusative

178. Rasmussen (1989b: 160–161; 1992b [1999]: 480–483); Kortlandt (1985; 1997).

179. In my dissertation (Olander 2006), I argued for the traditional view.

180. Mathiassen (1974: 3–7); cf. (1970); Stang (1975: 46); see also § 4.1 above.

singular) were prosodically distinct, due to the two binary distinctions acute vs. circumflex, and accented vs. unaccented:[181]

Table 13. Reflexes of Proto-Balto-Slavic prosodic types in Lithuanian, Latvian, Proto-Slavic and Common Slavic

	PBS	LI	LV	PS	CS
1	*ˈlēˀi̯pān	*líepą* AP 1	*liẽpu*	*ˈlēi̯pān AP *a*	*lípǫ AP *a*
2	*ˈu̯ai̯tān	*viẽtą* AP 2	*vìetu*	*u̯alˈkān AP *b*	*volkǫ̀ AP *b*
3	*ˌgāˀlu̯ān	*gálvą* AP 3	*galv̂u*	*ˌgālu̯ān AP *c*	*gôlvǫ AP *c*
4	*ˌźei̯mān	*žiẽmą* AP 4	*zìemu*	*ˌzei̯mān AP *c*	*zîmǫ AP *c*

As can be seen from the table, the Lithuanian tones reflect the Proto-Balto-Slavic distinction between acute and circumflex syllables, but not the accentual distinction (1 and 3 vs. 2 and 4). The Latvian tones preserve the distinction between acute and circumflex vowels, and, in acute syllables, the accentual distinction (1 vs. 2 and 4 vs. 3). Slavic preserves the accentual distinction and, in accented words, the distinction between acute and circumflex vowels (1 vs. 2 vs. 3 and 4).

As I shall argue in Ch. 4, the accent curves of the Proto-Balto-Slavic mobile accent paradigms were determined by the Mobility Law. While not directly affecting the curves of the accent paradigms, three pre-Proto-Balto-Slavic developments – Hirt's Law, Winter's Law and the compensatory lengthening accompanying the loss of laryngeals – led to significant redistributions in the prosodic system and in the paradigmatic accentuation system.

Hirt's Law

A number of Proto-Indo-European desinentially accented words became root-accented in Proto-Balto-Slavic by Hirt's Law, according to which the accent was retracted from an accented syllable to an immediately preceding syllable that ended in a consonantal laryngeal in Proto-Indo-European, cf. the Balto-Slavic correspondences to VED *pūrṇá-*, *dhūmá-*, *grīvā́-*:[182]

181. Cf. Dybo (1981: 4–6), rejecting the traditional assumption of the genetic identity of the Baltic and Slavic circumflexes; Lehfeldt (1993 [2001]: 10–12).

182. Rasmussen (1985 [1999]: 171 and passim; 1992b [1999]: 470); cf. the slightly different formulations by Illič-Svityč (1979: 61–65); Kortlandt (1975: 2); see also the discussions and references in Collinge (1985 [1996]: 81–83); Derksen (2004: 83–85); Hock (2005: 10–11).

Table 14. Examples of Hirt's Law in Baltic and Slavic

PIE	PBS	LI	LV	PS	CS
**pl̥h₁nós*	**ˈpīˀlnas*	*pìlnas* AP 1	*pi͂lns*	**ˈpīlnu* AP *a*	**pȍlnъ* AP *a*
**dʰuhmós*	**ˈdūˀmas*	*dū́mai* AP 1	*dũmi*	**ˈdūmu* AP *a*	**dȳmъ* AP *a*
**grih₃u̯áh₂*	**ˈgrīˀu̯āˀ*	–	*grĩva*	**ˈgrīu̯ā* AP *a*	**grívа* AP *a*

Hirt's Law was not triggered by Proto-Balto-Slavic long vowels reflecting Proto-Indo-European long vowels (**V̄*), by vowels lengthened due to the loss of a vocalic laryngeal (**V(R)ə*), or by vowels lengthened by Winter's Law (**V(D)*). This shows that when the accent retraction took place, **Vh* was still distinct from **V̄*, **V(R)ə* and **V(D)*. Since desinentially accented paradigms become root-accented by Hirt's Law, this accent retraction must have taken place before the Mobility Law; the opposite chronology would have yielded a paradigm PBS nom. sg. **ˈgrīˀu̯āˀ*, acc. †**ˌgrīˀu̯ān* etc.

Winter's Law

The subject of much discussion since its presentation thirty years ago,[183] Winter's Law represents a pre-Proto-Balto-Slavic vowel lengthening before originally unaspirated voiced stops, cf. the Balto-Slavic correspondences of LA *sedeō* and GO *naqaþs*:

Table 15. Examples of Winter's Law in Baltic and Slavic

PIE	PBS	LI	LV	PS	CS
**sed-*	**sēˀd-*	*sėdė̃ti*	*sêdêt*	**sēˈdētēi̯* AP *c*	**sědě̄ti* AP *c*
**nogʷós*	**ˌnōˀgas*	*núogas* AP 3	*nuôgs*	**ˌnāgu* AP *c*	**nâgъ* AP *c*

Cf. the absence of lengthening when the vowel was followed by an originally aspirated voiced stop: PIE **u̯edʰ-* > PBS **u̯ed-* > LI prs. 1 sg. *vedù*, LV *vedu*, PS **ˌu̯edān* (CS **vědǫ*), cf. LA *vehō*; PIE **u̯eĝʰ-* > PBS **u̯eź-* > LI prs. 1 sg. *vežù*, PS **ˌu̯ezān* (CS **vězǫ*), cf. VED *vah-*. The lengthening took place also when the vowel and the stop were separated by a resonant, e.g. PIE **h₂melĝ-* > PBS **mēˀlź-* > LI prs. 1 sg. *mélžu*, cf. GK *ἀμέλγω*.[184]

183. The law was originally proposed in a paper presented in 1976, published as Winter (1978); see Collinge (1985 [1996]: 225–227); Birnbaum (1985); Kortlandt (1988a); Derksen (2003; 2004: 82–83); Hock (2004: 4–6).

184. See Young (1990; 1991b).

While some scholars reject a Balto-Slavic phonetic vowel lengthening before voiced unaspirated stops altogether,[185] those who accept it are primarily concerned with possible restrictions to it. While Kortlandt assumes that vowels are not lengthened before certain consonant groups,[186] Matasović assumes lengthening in closed syllables only;[187] Shintani and Rasmussen restrict the lengthening to unaccented vowels and immediately pretonic vowels not followed by **DR* (*R* = sonorant) respectively.[188] If the latter hypothesis is correct and Winter's Law only operated in pretonic syllables, a relative chronology may be proposed between Winter's Law and the Mobility Law. The consistent operation of Winter's Law in words with mobile accentuation in Proto-Balto-Slavic would be an argument in favour of regarding the law as chronologicallly anterior to the Mobility Law; otherwise the lengthening of all forms of for example PBS **ˌsmāˀrdas* > LV *smarîds* would be unexpected since lengthening would be regular only in the relatively few cases with desinential accentuation. Whatever the exact formulation of Winter's Law is, the problems the law solves are significantly more substantial than the questions it raises.

Loss of laryngeals with lengthening

Besides Winter's Law, an important source of Balto-Slavic long syllables is the contraction of a vowel with a following tautosyllabic consonantal laryngeal (see the examples mentioned under Hirt's Law above in this subsection) and the compensatory lengthening of a vowel followed by a resonant and a disappearing vocalic (or, after **i̯*, consonantal) syllable-final laryngeal, e.g. PIE **gʷerə₃tḗi̯* > PBS inf. **gēˀrˈtēi̯* > LI *gérti*, LV *dzerît*; PIE **tenə₂u̯ós* > PBS **ˌtēˀnu̯as* > LV *tiêvs*.[189] These development are rather uncontroversial.

In Ch. 4 § 3.2, "Optative", a development of the optative 2 and 3 singular is proposed according to which the long final syllables of pre-PBS **suˈpāˀi̯s*, **suˈpāˀi̯t* (by compensatory lengthening from PIE **supói̯h₁s*, **supói̯h₁t*) remain accented in accordance with the Mobility Law. Later, final long vow-

185. E.g. Gercenberg (1981: 139); Schmid (1986); Eichner (1988: 87); see also Szemerényi (1970 [1990]: 162–163); Mayrhofer (1986: 96 fn. 21).
186. Kortlandt (1979a: 60–61).
187. Matasović (1995); thus also Rix et al. (ed.) (1998 [2001]: 67).
188. Shintani (1985: 278); Rasmussen (1992c [1999]: 537); cf. (1992b [1999]: 470–471 with fn. 3); for Holst's view that only accented vowels are lengthened (2003: 171) see Derksen (2004: 82).
189. Vaillant (1950: 244–245); Stang (1966a: 128–129, 1975: 46); see the discussion and references in Hock (2004: 18–21).

els were shortened in front of *-*ỤC*, yielding PBS **su*ˈ*paị̯s*, **su*ˈ*paị̯* > LI 3 ps. *tesupiẽ*, PS 2/3 sg. **su*ˈ*paị̯*. This development implies that the compensatory lengthening resulting from the loss of laryngeals took place before the operation of the Mobility law. However, since the possibility of analogical levelling at various stages in this form cannot be ruled out, the chronology is not cogent.

5.2. Paradigmatic accent

Proto-Balto-Slavic inflected words belonged either to an immobile accent paradigm characterised by columnar accentuation on a non-desinential syllable, or to a mobile paradigm characterised by an alternation between unaccented and desinentially accented word-forms. The distribution of unaccented and desinentially accented word-forms in the mobile paradigm was different in the different stem-classes. In Proto-Balto-Slavic, in contrast to later language stages like Lithuanian and Proto-Slavic, the distribution of words among the accent paradigms was independent of the prosodic properties of the root-vowel.

The number of words belonging to the Proto-Balto-Slavic immobile accent paradigm, which primarily contained words with Proto-Indo-European non-desinential accentuation, was increased when Hirt's Law retracted the accent from the desinence to the root (see § 5.1 above). The immobile paradigm remained immobile until it was split into AP 1 and 2 by Saussure's Law in pre-Lithuanian (see § 1.3 above) and, independently, into AP *a* and *b* by Dybo's Law in pre-Proto-Slavic (see § 4.3 above). The mobile paradigm was split into AP 3 and 4 by Saussure's Law in pre-Lithuanian, whereas in Slavic it was not subject to further bifurcation.

Nominal system

While immobile nouns had simple columnar accentuation on a non-desinential syllable, e.g. PBS nom. sg. **lˈēˀị̯pāˀ*, acc. **lˈēˀị̯pān*, gen. **lˈēˀị̯pāˀs*, dat. **lˈēˀị̯pāị̯* etc., the accent curves of mobile words were quite complicated, being characterised by an alternation of forms with desinential accentuation and unaccented forms. The following table illustrates the reconstructions of the most important mobile paradigms; the reconstructions are accounted for in Ch. 4 § 3.1.

Table 16. Declension of mobile nouns in Proto-Balto-Slavic

	o-stem	*ā*-stem	*i*-stem	*u*-stem
		SINGULAR		
nom.	**ˌlāʾngas / *ˌśimtan*	**gāʾlˈu̯āʾ*	**ˌmintis*	**ˌsōʾdus*
acc.	**ˌlāʾngan / *ˌśimtan*	**ˌgāʾlu̯ān*	**ˌmintin*	**ˌsōʾdun*
gen.	**ˌlāʾngā*	**gāʾlˈu̯āʾs*	**ˌminteı̯s*	**ˌsōʾdau̯s*
dat.	**ˌlāʾngōı̯*	**ˌgāʾlu̯āı̯*	**ˌminteı̯*	**sōʔˈdau̯eı̯*
instr.	**ˌlāʾngōʾ*	**ˌgāʾlu̯āʾn*	**minˈtimi*	**sōʔˈdumi*
loc.	**ˌlāʾngaı̯*	**gāʾlˈu̯āʾı̯*	**minˈtēı̯*	**sōʔˈdāu̯*
		DUAL		
nom.-acc.	**ˌlāʾngōʾ / *ˌśimtāʾı̯*	**ˌgāʾlu̯āʾı̯*	**ˌmintīʾ*	**ˌsōʾdūʾ*
		PLURAL		
nom.	**ˌlāʾngaı̯ / *śimˈtāʾ*	**ˌgāʾlu̯ās*	?**ˌminteı̯es*	**ˌsōʾdau̯es*
acc.	**ˌlāʾngans / *śimˈtāʾ*	**ˌgāʾlu̯āns*	**ˌmintins*	**ˌsōʾduns*
gen.	**lāʾnˈgōn*	**gāʾlˈu̯ōn*	**minˈteı̯an*	**sōʔˈdau̯an*
dat.	**lāʾnˈgamas*	**gāʾlˈu̯āʾmas*	**minˈtimas*	**sōʔˈdumas*
instr.	**lāʾnˈgōı̯s*	**gāʾlˈu̯āʾmīʾs*	**minˈtimīʾs*	**sōʔˈdumīʾs*
loc.	**lāʾnˈgaı̯su*	**gāʾlˈu̯āʾsu*	**minˈtisu*	**sōʔˈdusu*

A few additional forms are of relevance: *ī*-stem nom. sg. **sāʾlˈdīʾ*; *ūs*-stem nom. sg. **su̯eˈśrūʾs*; *r*-stem nom. sg. **dukˈtē*; *n*-stem nom. sg. **āʾrˈmō*. Originally monosyllabic consonant stems were probably unaccented in the dative and locative plural, i.e. **ˌźu̯ēʾr(i)mas*, **ˌźu̯ēʾr(i)su*.

Verbal system

Primarily on the basis of Slavic material – the only directly preserved form with a secondary desinence in Lithuanian being prs. 3 ps. *sùpa* reflecting the Proto-Balto-Slavic thematic aorist or imperfect 3 sg. **ˌsupe* – we may reconstruct the following forms of the verbal mobile accent paradigm in Proto-Balto-Slavic:

Table 17. Conjugation of mobile verbs in Proto-Balto-Slavic

	THEM. PRS.	IPV.	SIGM. AOR.	THEM. AOR. / IMPF.
			SINGULAR	
1 sg.	**suˈpōʾ*	–	(**ˈmērsan*)	–
2 sg.	**suˈpesi*	**suˈpaı̯s*	?**ˌmers*	**ˌsupes*
3 sg.	**suˈpeti*	**suˈpaı̯*	?**ˌmer*	**ˌsupe*

			PLURAL	
1 pl.	**su|pemas*	**su|pā?i̯ime*	(**|mērsme*)	–
2 pl.	**su|pete*	**su|pā?i̯ite*	(**|mērste*)	–
3 pl.	**su|panti*	–	(**|mērsin*)	–

As we have seen above in § 1.2, "Verbal system", and § 4.2 , "Verbal system", a redistribution of the thematic verbs among the paradigms seems to have taken place in Baltic and Slavic. A number of plain thematic verbs with full grade of the root, which we expect to have root-accentuation in accordance with the evidence of Vedic supported by Greek and Germanic, are mobile in Baltic and Slavic, e.g. LI *nèšti* (prefixed *nèneša*, prs. ptc. *nešą́s*), PS **nes\|tēi̯* (prs. 1 sg. **\|nesān*, 3 sg. **nese\|ti*). I am not aware of an obvious reason for this redistribution, which may have started in Proto-Balto-Slavic. Further investigation of the Baltic and Slavic systems of verbal accentuation may clarify the problem.

Old Prussian and Slavic indicate that athematic verbs were root-accented in Proto-Balto-Slavic. They may therefore be left out of consideration in this study.

Chapter 4
The Balto-Slavic mobility

In Ch. 1 § 5 I aimed at showing that existing theories on the origin and development of the Balto-Slavic paradigmatic accent mobility in vowel stems have serious shortcomings. The view that the mobility is inherited directly from the Indo-European proto-language is poorly supported by evidence from other Indo-European languages. The hypothesis that the mobility of the Balto-Slavic vowel stems has arisen by an imitation of the inherited mobility of the consonant stems is difficult to accept, not only because there seems to be no motivation for this complicated analogical development, but also because the mobility of the Proto-Indo-European consonant stems is of a rather different nature from that of the Proto-Balto-Slavic vowel stems, requiring a number of additional assumptions in order to generate the attested outcome.

1. The Mobility Law: formulation

To account for the paradigmatic accent mobility of Baltic and Slavic I assume that an accent law operated at a pre-stage of Proto-Balto-Slavic. In the original formulation of this accent law as presented in my dissertation (2006),[1] I assumed that after the disappearance of intervocalic laryngeals in pre-Proto-Balto-Slavic, word-forms accented on a final short or hiatal syllable became unaccented ($\acute{V} >$ [−accent] / _ ($\breve{V}$)C_0#). Convinced by the evidence and the arguments recently introduced in the discussion by Andersen (see § 2 below), I now think that the formulation may be refined. I assume that in the pre-Proto-Balto-Slavic period following the dissolution of the Indo-European proto-language, accent had the following phonetic realisation:[2]

- Accented short vowels (reflexes of PIE *$\acute{V}$) were realised with high pitch on the only mora: μ́.

1. See also Olander (2007b). In Olander (2002: 118) I proposed an early version of the accent law.
2. In this period the syllabic nucleus was constituted by the vowel only; tautosyllabic resonants following the vowel were not moraic.

- Accented plain long vowels (reflexes of PIE **V́*) and long vowels from contraction with a syllable-final laryngeal (reflexes of PIE **V́h*) were realised with high pitch on the first mora: μ́μ.
- Accented long vowels from final hiatal structures (reflexes of PIE **V́(h)V(h)*) were realised with high pitch on the second mora: μμ́.[3]

At this point, high pitch on a final mora in the phonological word (i.e. including clitics) became low:

μ́ > [–high] / _ C_0#

This is the Mobility Law. In phonological words that were accented on a non-final mora, i.e. on any non-final syllable or on a final syllable containing the reflexes of PIE **V́* or **V́h*, the accent remained in its original position.[4] Since the phonological accent was realised as high pitch, word-forms that lost their high pitch by the Mobility Law were now phonologically unaccented.

For instance, PIE *o*-stem masc. nom. sg. **longós* > pre-PBS **lāˀnˈgas*[5] with an accented short final syllable yielded unaccented PBS **ˌlāˀngas* by the Mobility Law, reflected in LI *lángas*, PS **ˌlāngu* (CS **lǫ̂gъ*); and PIE *ā*-stem nom. pl. **gʰoləu̯áh₂as* > pre-PBS **gāˀlu̯aˈas* with an accented final mora produced unaccented PBS **ˌgāˀlu̯ās*, reflected in LI *gálvos*, PS **ˌgālu̯ū* (CS **gôlvy*). By contrast, the desinential accent was retained in PIE *ā*-stem nom. sg. **gʰoləu̯áh₂* > pre-PBS **gāˀluˈaaˀ* > PBS **gāˀlˈu̯āˀ*, yielding LI *galvà*, PS **gālˈu̯ā* (CS **golvà*); similarly in PIE *ā*-stem dat. pl. **gʰoləu̯áh₂mos* > pre-PBS, PBS **gāˀlˈu̯āˀmas* with a disyllabic desinence, yielding LI *galvóms*, PS **gālˈu̯āmu* (CS **golvā́mъ*). The relevant material is examined in detail in § 3 below.

In all Proto-Balto-Slavic phonological words (consisting of zero or more proclitics, one morphological word-form and zero or more enclitics), one syllable was characterised by an automatic, non-phonological, ictus. In pho-

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3. For the assumption that PIE **V́(h)V(h)* was realised with accent on the second mora, not on the first mora, one may compare the contraction of final **ˈVns* in Greek which also yielded accent on the second mora, e.g. **agrˈons* (μ́μ) > *ἀγρούς* /agroˈos/ (μμ́).
4. The fact that the phonological structure of the desinences plays a role in the paradigmatic accent mobility of Lithuanian was recognised already by Bopp: "Diejenigen Casus oxytonirter Stämme, welche durch die angefügte Casus-Endung um eine Sylbe wachsen, ziehen den Ton auf diese Endung" (1854: 87); see also Garde (1976, 1: 30–31, 2: 430–431 n. 34).
5. The acute vowel in the root-syllable of pre-PBS, PBS **ˌlāˀngas* < PIE **longós* is due to Winter's Law (see Ch. 3 § 5.1).

nological words containing an accented word-form, the ictus was on the accented syllable. In phonological words containing a phonologically unaccented word-form, the assignment of the ictus was slightly more complicated: if the phonological word included one or more enclitics, the ictus was on the final syllable of the morphological word-form; if there were no enclitics, the ictus was on the initial syllable of the phonological word. As pointed out by Andersen, this ictus placement rule (known as Šaxmatov's Law and Vasil'ev–Dolobko's Law, and still active in some attested Slavic linguistic systems) finds a simple diachronic explanation if we assume that the Mobility Law affected the whole phonological word, not only the morphological word-form (see § 2 below).

Apart from the possibility mentioned by Andersen that the Balto-Slavic accent loss was induced by external contact with languages with fixed accent on the initial syllable of the word (see § 2 below), we may also imagine an internal motivation for the change. As we have seen, in a period following the dissolution of the Indo-European proto-language and immediately preceding the Mobility Law, accented long final syllables had high pitch either on their first or on their second mora. The prosodic system thus contained a distinction between a falling tone (accent on the first mora of a long syllable) and a rising tone (accent on the second mora of a long syllable). Furthermore, all long syllables were either glottalised or unglottalised (or similarly distinguished), depending on the presence or absence of a syllable-final laryngeal in Proto-Indo-European. The change of a final high mora to a low one, which gave rise to the unaccented word-forms, had the effect of eliminating distinctive tones from the linguistic system, while the distinction between glottalised and unglottalised long syllables was retained. In this sense, the Mobility Law was a reinterpretation of the newly arisen distinctive tones in terms of accent. Retaining the existing lexical and morphological distinctions upheld by prosodic features, the Mobility Law reestablished the old, more economical prosodic system, which only comprised distinctive accent and quantity.

Before we proceed to the analysis of the material (§ 3 below), a few remarks are required on three previously proposed accent laws that bear some similarities to the accent law proposed here: the pre-Proto-Balto-Slavic accent retractions proposed by Sedláček and by Kortlandt, and the traditional formulation of Saussure's Law (see also the presentations of these accent laws and the frameworks in which they appear in Ch. 1 § 4).

Of the numerous Balto-Slavic accent laws that have been proposed by various scholars, the one that comes closest to the one advanced here is that of Sedláček, who assumed a pre-Proto-Balto-Slavic accent retraction from desinences with circumflex tone to the initial syllable of the word, which

thereby received circumflex tone. While Sedláček's hypothesis gives an explanation of the Slavic mobile paradigms that is almost identical to the one presented here, it diverges significantly when it comes to explaining the Lithuanian accentuation system. Like other accentologists of the pre-Dybo era, Sedláček identified the Lithuanian circumflex with the Slavic circumflex, i.e. he identified the tone of the first syllable of LI acc. sg. *rañką* with that of ŠTK *rûku*. As pointed out by Dybo, however, the Baltic and Slavic tones cannot be genetically identified with each other (see Ch. 3 § 5.1). Sedláček's explanation of the Lithuanian tones in terms of an original accentual opposition does not account for the facts; it is more likely that the Lithuanian tones reflect a distinction between vowels followed by a laryngeal or a voiced unaspirated stop (acute) and other vowels (circumflex). Moreover, Sedláček's view that the accent retraction replaces the traditionally assumed Saussure's Law is contradicted by the existence of four accent paradigms in Lithuanian; according to Sedláček's theory, there should be only two.

A comparison of the Mobility Law with Kortlandt's "late Balto-Slavic accent retraction", according to which the accent was retracted from short vowels and diphthongs in absolute final position in disyllabic word-forms, reveals certain points of intersection. The two laws both connect the large number of "root-accented" word-forms in the singular of the *o*-stems with the fact that these forms had short desinences in Proto-Balto-Slavic. Yet there are significant differences between the laws: (1) Kortlandt's retraction did not operate in closed syllables, e.g. pre-PBS gen. sg. **min*ˈ*teı̯s* > LI *mintiẽs* (PS *ˌ*gasteı̯* being regarded as secondary); (2) it only operated in disyllabic words, the accent being retracted by one syllable; (3) the retraction bears no relation to the appearance of unaccented word-forms of Slavic. By contrast, (1) the Mobility Law also affected closed syllables, e.g. pre-PBS gen. sg. **gas*ˈ*teı̯s* > PS *ˌ*gasteı̯* (LI *mintiẽs* being regarded as secondary); (2) it operated irrespective of the number of syllables in the word-form; (3) the class of unaccented word-forms arose by the same process as the Balto-Slavic mobility. According to Kortlandt, moreover, the phonetic accent retraction operated at a pre-stage of Balto-Slavic when the paradigmatic accent mobility was already a well-established phenomenon. By contrast, the Mobility Law is regarded as the very process that initiated the development of paradigmatic mobility in Proto-Balto-Slavic.

The traditional, pre-Stang, conception of Saussure's Law implies that the accent curves of the Lithuanian and Slavic mobile accent paradigms are determined by the prosodic properties of the desinences. The same can be said of the Mobility Law. For instance, according to both hypotheses the desinential accentuation of LI nom. sg. *žiemà* and PS **zeı̯*ˈ*mā* is a consequence of

the fact that the desinence contains a long uncontracted vowel (cf. GK *φυγή*); and the non-desinential accentuation of LI dat. sg. *žiẽmai* and PS **ˌzeį̄māį̄* is the result of the contracted vowel of the desinence (cf. GK *φυγῇ*). In a number of other respects, however, the Mobility Law differs from the traditional conception of Saussure's Law. Saussure's Law is a movement of the accent to a final syllable, while the Mobility Law is a loss of the accent in final syllables. The traditional understanding of the relationship between the Proto-Indo-European and Proto-Balto-Slavic accent paradigms diverges significantly from the one presented here. The identification of the Lithuanian and Slavic circumflexes by classical accentology also constitutes an important difference to the correspondences assumed here. Furthermore, the Mobility Law does not substitute Saussure's Law in Lithuanian, but creates one of the two basic accent paradigms which Saussure's Law later splits in four.

2. Andersen's contribution

At the Seventeenth Meeting of Nordic Slavists in Copenhagen in August 2007, Andersen presented an intriguing paper, "On the formation of Proto-Slavic". Dealing with the question of language contact as the source of linguistic change, Andersen drew attention to certain Slavonian dialects of Štokavian where words originally accented on a final mora have become phonologically unaccented; a similar development has taken place in Karelian dialects of Russian. As Andersen himself pointed out in his presentation, the accentual developments in the Slavonian and Karelian dialects are striking typological parallels to the accent law I have proposed in order to explain the origin of the Balto-Slavic mobile accent paradigms. In a forthcoming article kindly put at my disposal by the author, Andersen further investigates the origin of the Baltic and Slavic mobile accent paradigms in the light of the Slavonian and Karelian parallels. In this section I shall take a closer look at the material and with Andersen's analysis as my point of departure I shall examine the perspectives it opens for our understanding of the prehistory of the Baltic and Slavic mobile accent paradigms.

2.1. Accent loss in Podravina dialects

In the Slavonian dialects of Štokavian spoken in Podravina, the region along the Drava river in northern Croatia, we find an interesting accentual system. Words that are accented on the final mora in general Slavonian appear with

initial accent in most of the Podravina dialects. Word-forms accented on a non-final mora in general Slavonian, on the other hand, are accented on the same mora in the Podravina dialects. The following examples are taken from the reports by Hamm (1936; 1949) and Klaić (1936):[6]

general Slavonian	Podravina
nom. sg. *krãļ*	*krâļ*
nom. sg. *ženȁ*	*žȅna*
gen. sg. *vodẽ*	*vȍdē*
ipv. 2 sg. *pokāžȉ*	*pȍkāži*
nom. sg. *govedãr*	*gȍvedār*
nom.-acc. sg. *ministarstvȍ*	*mȉnistarstvo*
u ministarstvȍ	*ù ministarstvo*

Examples of words accented on a non-final mora are general Slavonian and Podravina adv. *danâs*, prt. ptc. masc. sg. *kāzô*, gen. pl. *svatōvâ*, nom. pl. *divõjke*, nom. pl. *komêndije*, acc. sg. *stolȉcu*.

As shown by general Slavonian nom. sg. *krãļ* vs. Podravina *krâļ*, the accent retraction from the final to the initial mora even takes place within the only syllable of monosyllabic words. The last example of the list above shows that if a form accented on the final mora in general Slavonian is preceded by a proclitic, the proclitic carries the accent in the Podravina dialects. The only case where a word-form may be accented on the final mora is if it is followed by an enclitic, e.g. Podravina *rūkȁ me* (*boli*) 'my hand (hurts)'; cf. (*boli me*) *rûka*. From a synchronic point of view, such forms with initial accentuation may be interpreted as phonologically unaccented, with an automatic ictus on the first syllable if there are no clitics present.[7]

Diachronically, this new class of enclinomena has arisen as a result of an accent law in the Podravina dialects. A phonological word (i.e. a morphological word plus clitics) accented on the final mora has lost the accent, or, in other words, high pitch on a final mora has become low:

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6. See also Ivić (1958: 285–306), whose notation of the words I have followed. Note that *â* is a long falling tone (accent on the first mora: ́μμ), whereas *ã* is a long rising tone (accent on the second mora: μμ́). According to Klaić (1936: 182), words with retracted accent on a long initial syllable, e.g. ipv. 2 sg. *krâdi*, are prosodically distinct from words with an old initial accent, e.g. nom. sg. *grâd*; cf. Ivić (1958: 287).
7. Andersen (forthc. § 7); see also Ter-Avanesova (1989: 216), who speaks of this type of words in the Podravina dialects (and in the Zaonež'e dialects, see below) as "новые энклиномены" ["new enclinomena"].

$\acute{\mu} > [-\text{high}] / _C_0\#$

The tendency to avoid a final accent in the Podravina dialects is probably the result of influence from the fixed initial accent of the Hungarian dialects spoken in the same region.[8]

2.2. Accent loss in Zaonež'e dialects

In North Russian dialects spoken in the Zaonež'e region of Karelia, the accent has been retracted from the final to the initial syllable, a phenomenon known as *ljapan'e*.[9] In contrast to the accent retraction in the Podravina dialects, where the accent retraction is obligatory, in the Zaonež'e dialects it is facultative, i.e. words with retracted accent have variants with final accentuation. Like in the Podravina dialects, if the originally finally accented word-form is preceded by one or more proclitics, the accent is retracted to the leftmost proclitc. Also, the accent is not retracted in word-forms with a final accent if they are followed by an enclitic. Thus in the Zaonež'e dialects, as in the Podravina dialects, the domain of the accent retraction is the phonological word. The following examples illustrate the effects of the accent loss in the Zaonež'e dialects:[10]

standard Russian	Zaonež'e dialect
nom. sg. *sestrá*	*s'ɔ́ʌstra*
prs. 3 sg. *živët*	*žýv'æt*
gen. sg. *roždestvá*	*Rɔ́ʌžəs'va*
nom. pl. *kolduný*	*kɔ́ʌłduny*
prs. 3 sg. *perebežít*	*p'ǽr'ɛb'ɛžyt*
pered roždestvóm	*p'ǽr'æd Rɔžəs'vɔm*
bez mužiká	*b'ǽz mužyka*
u nás	*ú nas*
ne iz-za zubóv	*n'ɛ́a iz-za zubof*

Words with non-final accentuation retain the original position of the accent. The accent retraction in words with final accentuation is prevented by certain

8. Ivić (1958: 287); Andersen (forthc. § 7).
9. Ter-Avanesova (1989: 217).
10. The following account is based on the reports in Ter-Avanesova (1989) and Ter-Avanesova and Ryko (2004); the examples are taken from the former publication.

enclitics, e.g. the reflexive particle *-sja* and pronominal particles like *-ka* and *-to*. Other enclicitics, like the conjunction *li* and the verbal particle *-ka*, do not block the accent retraction, cf. e.g. prs. 3 pl. *dájut'l'i*, prs. 1 sg. *vóz'mu da*, ipv. 2 sg. *pósmъtr'i-kʌ*.

The word-forms with retracted accent in the Zaonež'e dialects may be interpreted as phonologically unaccented, with an automatic ictus on the first syllable if there are no clitics present.

An interesting circumstance is that in the southern and western Zaonež'e dialects, the vocalism of the first syllable of words with retracted accent differs from the vocalism of syllables with non-retracted accent. In the case of CS **o*, the Zaonež'e dialects have a closed *o* (<ô>, <o̩>) in originally accented syllables (e.g. prs. 3 sg. *mó̀žet* < CS **mòžetь*); an open *o* (<ɔ>, <o>) in the first syllable of old enclinomena (e.g. prt. masc. sg. *prɔ́p'ił* < CS **prъ̈pilъ*); and *ɔ́ʌ* in the first syllable of words with retracted accent (e.g. fem. nom. sg. *ɔ́ʌna*; prs. 1 sg. *rɔ́ʌsp'išus'*; prepositional phrases like *ɔ́ʌ Rɔžəs'v'i*). Besides, word-forms with retracted accent are characterised by a special tonal contour that distinguishes them from word-forms with old initial accentuation.

As mentioned above, the retracted accent is the result of a loss of the accent in phonological words accented on the final syllable:

V́ > [– accent] / _ C_0#

Like the Podravina accent loss, the accent loss in Zaonež'e is presumably the result of external influence: the Russian dialects in this area are spoken on a substratum of Karelian, a Finno-Ugric language with fixed initial accentuation.[11]

2.3. Andersen's Partial Accent Loss in pre-Baltic and pre-Slavic

Pointing out the relevance of the attested cases of accent loss in Slavic dialects for the evaluation of the possibility of an accent loss in pre-Baltic and pre-Slavic, Andersen draws the outlines of a scenario that may have given rise to the Baltic and Slavic mobile accent paradigms. The similarities on the synchronic level between the prosodic systems attested in the Podravina and Zaonež'e dialects, on the one hand, and the reconstructed early stages of Baltic and Slavic, on the other, suggest a similar origin of these systems on the diachronic level. Since the unaccented word-forms in the attested prosodic systems have arisen through an accent loss in words accented on a final

11. Ter-Avanesova (1989: 218) with references; Andersen (forthc. § 7).

mora or syllable, it is not unlikely that the unaccented word-forms in Baltic and Slavic have the same origin. Taking as his point of departure an analysis and criticism of the Mobility Law as presented in my dissertation (2006), Andersen proposes the following scenario:[12]

- Contour 1 (high pitch on the first mora, and low pitch and reduced force on the second mora) characterises the reflexes of PIE **V*(*R*)*h* and **V*(*R*)_*D*.
- Contour 2 (level, high pitch and even force) characterises the reflexes of PIE **V̄*(*R*), **VR*, final **V*(*h*)*V*, and **V*.
- Partial Accent Loss: "Contact interference tending to displace word final prominence affects word forms with a final high mora"; put differently, words with Contour 2 on a final syllable become unaccented, while words with Contour 1 on a final syllable and words with non-final accentuation remain unaffected.

Mainly on the basis of the typologically parallel developments in the Podravina and Zaonež'e dialects, Andersen attributes the Partial Accent Loss and the development of a new class of unaccented word-forms, or enclinomena, from forms with final accentuation at pre-stages of Baltic and Slavic to contact interference with early Indo-European dialects in the Indo-European North-West.[13]

Although the developments sketched above are identical at the pre-stages of Baltic and Slavic, Andersen explicitly maintains that the central innovation in the development of the Baltic and Slavic mobility, the Partial Accent Loss, "was not a shared Slavic and Baltic innovation".[14] While I cannot deny that this is possible, in my opinion it is a more simple and not less effective solution to see the developments as a shared innovation between Baltic and Slavic and thus as an argument in favour of the former existence of a Balto-Slavic proto-language capable of carrying through innovations with identical results (see Ch. 1 § 3, "Periodisation").

A highly interesting point made by Andersen in his comparison of the accentual systems of Podravina and Zaonež'e with those of early Baltic and Slavic is his analysis of Vasil'ev–Dolobko's Law and Šaxmatov's Law as direct consequences of the Partial Accent Loss. As mentioned in Ch. 3 § 4.1, "Šaxmatov's Law and Vasil'ev–Dolobko's Law", Vasil'ev–Dolobko's Law in Slavic describes the mechanism that an enclitic following an unaccented word-form is accented, e.g. Old RU gen. sg. *nošči bó* from PS **nakteį̯ ˈba*

12. Andersen (forthc. §§ 8–9).
13. Andersen (forthc. § 12).
14. Andersen (forthc. § 10).

(CS **not'i bò*), or ŠTK adv. *nòćas* from PS **nakti ˈsi* (CS **not'ъ sь*). According to Andersen's interpretation of the facts, the historical explanation of this Slavic accentuation rule is very simple. If a word-form accented on the final mora was followed by an enclitic when the Partial Accent Loss took place, the accented syllable was not in final position in the phonological word and the accent remained where it was. For instance, when pre-Baltic and pre-Slavic *i*-stem gen. sg. **nakˈteiˀs* lost its accent and became **ˌnakteiˀs*, the accentuation of the same word-form followed by an enclitic, **nakˈteiˀs ba*, remained unchanged. This development finds an exact parallel in the Podravina dialects, where *rūkà* has yielded *rûka*, while in *rūkà me* (*boli*) the accent has preserved its original position. In pre-Slavic, Dybo's Law (see Ch. 3 § 4.3) later caused the accent to move from the final syllable in word-forms followed by an enclitic to the enclitic itself, yielding PS **nakteiˀ ˈba* (CS **not'i bò*) > Old RU *nošči bó* etc.[15]

Šaxmatov's Law (see Ch. 3 § 4.1, "Šaxmatov's Law and Vasil'ev–Dolobko's Law") describes the peculiarity of many Slavic linguistic systems that if an enclinomenon is preceded by one or more proclitics, the leftmost proclitic receives an automatic ictus, e.g. RU *ná golovu*, ŠTK *nà glāvu*. According to Andersen's analysis, this ictus placement rule is also a consequence of the accent loss in pre-Baltic and pre-Slavic. Since the accent loss affected the phonological word including clitics, a prepositional phrase like pre-Baltic and pre-Slavic **nō gāˀlu̯aˈan* yielded **ˌnō gāˀlu̯ān* by the accent loss, with an automatic ictus on the leftmost proclitic. The accent losses in the Podravina and Karelia dialects had exactly the same effect as Šaxmatov's Law, cf. Podravina *ù ministarstvo*, Zaonež'e *b'ćez mužyka*.

A further positive side-effect of the diachronic interpretation of the Baltic and Slavic mobile accent paradigms as the result of an accent loss in syllables with a certain structure should be noted. The hypothesis automatically explains why Vasil'ev–Dolobko's Law takes precedence over Šaxmatov's Law, as shown by examples like Old RU *ot grada žè* 'from the town', *ne oba lí* 'not both?'[16] (not †*ót grada že*, †*né oba li*). The precedence of Vasil'ev–Dolobko's Law over Šaxmatov's Law is exactly what we expect when the accent loss affects sequences of a proclitic, a word-form accented on a final mora, and an enclitic. Since the domain of the accent loss is the phonological word, the accent remains on the last syllable of the morphological word-form, only later (by Dybo's Law) moving to the enclitic. For instance, pre-

15. The Old Russian form is quoted from Dybo (1975: 33).
16. The Old Russian forms are quoted from Dybo (1975: 41, 56).

PBS **nō gāˀlu̯ˈaan ba* yields PBS **nō gāˀlˈu̯ān ba*, by Dybo's Law producing PS **nā gālu̯ān ˈba* (CS **na golvǫ bò*).

I find it hard not to accept Andersen's elegant interpretation of Vasil'ev–Dolobko's Law and Šaxmatov's Law as automatical consequences of an accent loss in pre-Baltic and pre-Slavic. His analysis of these accentual phenomena provides a strong argument in favour of the hypothesis that the Baltic and Slavic mobile accent paradigms have arisen by an accent loss.

While I do agree with most of Andersen's findings as summarised above, there are certain details that, in my opinion, suggest another formulation of the prehistoric accent loss in Baltic and Slavic than Andersen's. According to Andersen, the syllables that retained the accent in final position at early stages of Baltic and Slavic had the same structure (Contour 1) as syllables that attracted the accent by Saussure's Law and were shortened by Leskien's Law in pre-Lithuanian; and the final syllables that lost the accent in pre-Baltic and pre-Slavic had the same structure (Contour 2) as syllables that were not subject to Saussure's and Leskien's Laws in pre-Lithuanian. This view runs into difficulties when we try to account for two prosodically different types of forms in the mobile accent paradigms of Lithuanian:

1 Forms with non-final accentuation and Saussure's and Leskien's Laws, e.g. LI *ā*-stem nom.-acc. du. *gálvi* AP 3 (cf. *rankì* AP 2).
2 Forms with final accentuation and no Saussure's and Leskien's Laws, e.g. LI *r*-stem nom. sg. *duktẽ* AP 3.

This is reminiscent of the difficulties faced by the Sedláček at the beginning of the twentieth century when he assumed that the Balto-Slavic mobility was the result of an accent retraction from final syllables with circumflex intonation (see Ch. 1 § 4).

The problem may be solved by assuming that the accent loss was exclusively determined by the structure of final syllables (no accent loss in PIE **V̄* and **Vh* vs. accent loss in PIE **V(h)V* and **V*), while Saussure's and Leskien's Laws were determined by the presence or absence of a final laryngeal (no Saussure's and Leskien's Laws in **V̄*, **V(h)V* and **V* vs. Saussure's and Leskien's Laws in PIE **Vh*). This solution leads to a somewhat different view on the developments preceding the accent loss in pre-Baltic and pre-Slavic. In the preceding section I have presented my hypothesis of the earliest accentual developments in pre-Proto-Balto-Slavic which both takes into account Andersen's findings and deals with the interference between paradigmatic mobility and Saussure's Law.

3. The Mobility Law: material

In order to test the hypothesis, the Mobility Law, on the material, in the following two subsections I shall examine the accentuation of the Proto-Balto-Slavic word-forms that reflect Proto-Indo-European forms with desinential accentuation. The examination should be compared with the remarks on various forms in the Lithuanian and Proto-Slavic paradigmatic accentuation systems in Ch. 3 § 1.2 and § 4.2.

The example words are typical correspondences, not necessarily cognates. In the comparison of the structure of Proto-Indo-European accented desinences and the accentuation of the corresponding Proto-Balto-Slavic, Lithuanian and Proto-Slavic word-forms, the following symbols are used:

> expected accentuation and tone/quantity
→ unexpected accentuation
⟹ expected accentuation, unexpected tone/quantity
( ) no genetic identity between desinences

3.1. Nominal system

Nominative singular

Table 18. Development of the accentuation of the nominative singular

PIE		PBS		LI		PS	CS
**longós*	>	**ˌlāˀngas*	>	*lángas*	>	**ˌlāngu*	**lǫ̑gъ*
**ḱm̥tóm*	>	**ˌśimtan*		(*šálta*)		(**ˌsuta*)	(**sъ̑to*)
**gʰolə̯úáh₂*	>	**gāˀlˈu̯āˀ*	>	*galvà*	>	**gālˈu̯ā*	**golvà*
**mn̥tís*	>	**ˌmintis*	→	*širdìs*	>	**ˌgasti*	**gȍstь*
**sodús*	>	**ˌsōˀdus*	→	*lietùs*	>	**ˌsādu*	**sâdъ*
**su̯ah₂du̯íh₂*	>	**sāˀlˈdīˀ*	>	*saldì*		–	–
**su̯eḱrúhs*	>	**su̯eˈśrūˀs*		–	>	**su̯eˈkrū*	**svekrỳ*
**dʰugə₂tḗr*	>	**dukˈtē*	>	*duktẽ*	>	**dukˈtī*	**dъtʲì*
**h₂orə₃mḗn*	>	**āˀrˈmō*	>	*armuõ*		–	–

• Masculine *o*-stems – PIE **-ós*: VED *deváḥ*, GK *ἀγρός*.

The unaccented form PBS **ˌlāˀngas*, preserved in LI *lángas* and PS **ˌlāngu*, is in accordance with the Mobility Law.[17] For the accentuation of Lithua-

17. I regard the development of PBS **-as* to PS **-u* as regular; for this development see e.g. Gălăbov (1973) and the references of Olander (2005: 274 fn. 13).

nian definite adjectives like *piktàsis* and the question of Nieminen's Law, see Ch. 3 § 1.1. The final accentuation of the nominative singular of the Lithuanian *arklỹs* type (acc. *árklį*, gen. *árklio* etc.) is probably secondary, although the source of the accentuation of this somewhat unclear type is difficult to ascertain.[18]

• Neuter *o*-stems – PIE **-óm*: VED *yugám*, GK *ζυγόν*.
In East Baltic and Slavic the nominal desinence **-om* was substituted with the pronominal desinence **-od*, the original desinence being preserved in Old Prussian. Since the unaccentedness attested by the Lithuanian predicative adj. *šálta* and by PS *|*suta* is the expected accentual outcome of both **-óm* and **-ód* by the Mobility Law, it seems justified to trace this accentuation back to Proto-Balto-Slavic. For a discussion of the origin of the mobility of Slavic neuters like RU nom.-acc. sg. *póle* vs. pl. *poljá*, see below in this subsection, "Nominative plural"

• *ā*-stems – PIE **-áh₂*: VED *jihvā́*, GK *φυγή*.
The desinence is monosyllabic in the Indo-Iranian metre and has acute tone in Greek. The accentuation of PBS **gāˀlˈu̯āˀ*, preserved in both Lithuanian and Slavic, is regular. The desinence is acute and triggers Saussure's Law in Lithuanian. In the Lithuanian *ė*-stems the circumflex tone of *gerklẽ* has arisen as the result of a prehistoric contraction of **-iį̄āˀ* to pre-LI **-ēˀ*.[19]

• *i*-stems – PIE **-ís*: VED *matíḥ*, GK *πόλις*.
The expected Proto-Balto-Slavic unaccented form resulting from a Proto-Indo-European short desinence is preserved in PS *|*gasti*. The corresponding Lithuanian form *širdìs* has probably received desinential accentuation by analogy with the *ā*-, *ē*- and *C*-stems, where this accentuation is regular.

• *u*-stems – PIE **-ús*: VED *svādúḥ*, GK *ἡδύς*.
The expected Proto-Balto-Slavic unaccented form is preserved in PS *|*sādu*. In Lithuanian the desinential accentuation of the *ā*-, *ē*- and *C*-stems has been introduced, perhaps partly due to the influence of definite adjectives like *saldùsis* where the accentuation may be a result of the blocking of the Mobility Law by an enclitic (see § 2.3 above and Ch. 3 § 1.1, "Nieminen's Law").

• *ī*-stems – PIE **-íh₂*: VED *devī́*, GK *ὄργυια*.
The long desinence regularly retained the accent in Proto-Balto-Slavic as shown by LI *u*-stem adj. *saldì*; the Slavic material is ambiguous.

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18. See Stang (1966a: 188–192). I am grateful to Kortlandt (pers. comm.) for directing my attention to this type.
19. Stang (1966a: 201–204).

• *ūs*-stems – PIE **-úhs*: VED *śvaśrū́ḥ*; GK *πληθῦς*.

The desinential accentuation shown by PS **sy̯e˩krū* is the expected outcome of a Proto-Indo-European long desinence.

• *r*-stems – PIE **-ér̥*: VED *duhitā́*, GK *πατήρ*.[20]

The monosyllabic scansion in the Vedic and Avestan metres, the acute tone of Greek and internal reconstruction of Proto-Indo-European point to an originally long monosyllabic desinence. The desinential accentuation of Proto-Balto-Slavic **duk˩tē* in accordance with the Mobility Law is preserved in LI *duktẽ*; as we have seen in Ch. 3 § 4.2, "Nominal system", the Slavic material is ambiguous as for the accentuation of this form.[21] For the circumflex tone of the desinences of *duktẽ* and *n*-stem *armuõ*, shown by the absence of shortening by Leskien's Law, see Ch. 3 § 1.3. For the accentuation of the remaining forms of the Baltic and Slavic *r*- and *n*-stems see below in this subsection, "Consonant stems".

• *n*-stems – PIE **-én̥*: VED *ukṣā́*, GK *ποιμήν*.

Like the *r*-stems, the *n*-stems had a long monosyllabic desinence in the proto-language, as shown by Indo-Iranian, Greek and internal reconstruction. The regular desinential accentuation of Proto-Balto-Slavic is preserved in LI *armuõ*, with secondary introduction of the proterokinetic *o*-coloured desinence. Cf. above on the nominative singular of the *r*-stems.

Accusative singular

Table 19. Development of the accentuation of the accusative singular

PIE		PBS		LI		PS	CS
**longóm*	>	**˩lāˀngan*	>	*lángą*	>	**˩lāngu*	**lǫ̑gъ*
**gʰoləu̯áh₂m̥*, **-m*	>	**˩gāˀlu̯ān*	>	*gálvą*	>	**˩gālu̯ān*	**gôlvǫ*
**mn̥tím*	>	**˩mintin*	>	*šìrdį*	>	**˩gasti*	**gȍstь*
**sodúm*	>	**˩sōˀdun*	>	*líetų*	>	**˩sādu*	**sâdъ*

20. For the accentuation of *θυγάτηρ*, *μήτηρ*, which I regard as secondary, see Ch. 2 § 2.3.

21. Some scholars (e.g. Stang 1957 [1965]: 176; 1966a: 296; Snoj 2004: 540) regard the development of final **-ē* to *-i* in OPR *duckti* (2× in the *Enchiridion*) as an indication of non-final accentuation; but the value of this form is questionable.

- *o*-stems – PIE **-óm*: VED *devám*, GK *ἀγρόν*.

The unaccentedness of PBS **ˌlāʾngan* containing a Proto-Indo-European short desinence is in accordance with the Mobility Law.

- *ā*-stems – PIE **-áh₂m̥*, **-áh₂m*: VED *jihvā́m*, GK *φυγήν*.

The Proto-Indo-European phonotactic rules, according to which sonorants are syllabic when not standing next to a vowel, predict a hiatal realisation **-áh₂m̥* of the desinence. This syllabification, which is also indicated by the absence of the operation of Saussure's Law in LI *viẽtą* AP 2, would yield the unaccented form attested in LI *gálvą*, PS **ˌgālu̯ān*.[22] On the other hand, the Greek acute tone and the fact that the desinence is monosyllabic in Indo-Iranian point to non-hiatal **-áh₂m*. The suggestion that **-áh₂m̥* and **-áh₂m* were preconsonantal and prevocalic sandhi variants in the proto-language seems to be the most likely solution.[23]

- *i*-stems – PIE **-ím*: VED *matím*, GK *πόλιν*.

The unaccentedness of PBS **ˌmintin* is in accordance with the Mobility Law.

- *u*-stems – PIE **-um*: VED *svādúm*, GK *ἡδύν*.

The unaccentedness of PBS **ˌsōʾdun* is in accordance with the Mobility Law.

Genitive (*ablative*) *singular*

Table 20. Development of the accentuation of the genitive (ablative) singular

PIE		PBS		LI		PS	CS
**longó(h)at*	>	**ˌlāʾngā*	>	*lángo*	>	**ˌlāngā*	**lǫ̑ga*
**gʰolu̯áh₂s*	>	**gāʾlˈu̯āʾs*	⇒	*galvõs*	>	**gālˈu̯ū*	**golvỳ*
**mn̥téi̯s*	>	**ˌminteı̯s*	→	*širdiẽs*	>	**ˌgasteı̯*	**gȍsti*
**sodéu̯s*	>	**ˌsōʾdau̯s*	→	*lietaũs*	>	**ˌsādau̯*	**sâdu*

22. It is unclear if the segmental outcome of PIE **-ah₂m̥* would be PBS **-ām* > LI *-ą*, PS **-ān*; if not, a generalisation of **-ā-* from other forms of the paradigm is imaginable.
23. Thus Rasmussen (1985 [1999]: 173); cf. van Wijk (1923 [1958]: 98): inconclusive; Meillet (1924b: 134): perhaps dialectal variation; Stang (1966a: 199): different development of final PIE **-VhN*; Mayrhofer (1986: 132 fn. 141, 163–164), following Eichner: development of */-eh₂m/ to */-ām/, no mention of Balto-Slavic evidence, similarly Klingenschmitt (1992: 90).

• *o*-stems – PIE abl. *-*ó*(*h*)*at*: VED *devā́t*.

It is primarily on the basis of internal reconstruction that a hiatal desinence *-*óat* or similar[24] is reconstructed in the Proto-Indo-European ablative singular, which has replaced the genitive singular in the *o*-stems in Proto-Balto-Slavic. In the Vedic metre, the desinence is prevailingly monosyllabic, although it occasionally counts as two syllables.[25] In the Avestan metre, the desinence -*āṯ*, e.g. OAV, YAV *dūrāṯ*, is always monosyllabic. When followed by -*că̆*, the desinence is written -*āaṯ-čă̆*, e.g. OAV *vīrāaṯ-čā*, but since the scansion remains monosyllabic, the writing -*āa-* does not provide positive evidence of an originally disyllabic desinence.[26] If one accepts the laryngealistic version of the standard theory on the Germanic auslautgesetze, the long final vowel of adverbs like GO *galeiko* point to a Proto-Indo-European disyllabic desinence; according to the "final obstruent" hypothesis, on the other hand, the length of the final vowel of GO *galeiko*, whether reflecting original *$\bar{V}$ or **VV*, was preserved because of the following *-*t*. All in all, nothing seems to contradict the usual reconstruction of a Proto-Indo-European disyllabic desinence. In this case, the Proto-Balto-Slavic unaccented form is in accordance with the Mobility Law.

• *ā*-stems – PIE *-*áh₂s*: VED *jihvā́yāḥ*, GK *φυγῆς*.

If Meillet's view is accepted (and I think it should be) that PS *-*ū* (CS *-*y*) is the phonetically regular reflex of pre-PS *-*ās*,[27] the genitive singular PS **gālˈu̯ū* may be identified directly with LI *galvõs* and traced back to PBS **gāˀlˈu̯āˀs*. The desinential accentuation of the form is regular if from PIE *-*áh₂s*, whereas *-*áh₂as* would have yielded an unaccented form as in PBS nom. pl. *ˌ*gāˀlu̯ās*. Since the full-grade suffix *-*ah₂*- would normally be followed by a zero-grade ending, a desinence *-*ah₂-s* is expected on internal

24. Stang (1966a: 44, 128, 181: "*-*o-at* oder *-*oH₂et*"; Rasmussen (1989a: 132 fn. 11, 260–261: *-*o-at*; cf. Klingenschmitt (1992: 93): "*-*ó-ad*/*t* (oder *-*õ̃d*/*t*?), *-*é-ad*/*t* (oder *-*ã̃d*/*t*? […])".
25. For references see Ch. 2 § 1.2.
26. See Debrunner and Wackernagel (1930: 95); Hoffmann and Forssman (1996: 71); the reference to Avestan -*āaṯ*- as evidence of a Proto-Indo-European hiatal ending (e.g. Brugmann 1886 [1897], 2: 958; Stang 1966a: 128; Jasanoff 2002: 36) is unjustified.
27. Meillet (1914a: 6; 1924a [1934]: 151); see also Gălăbov (1973: 10–11). The nasal of the genitive singular of the South Slavic *i̯ā*-stems, e.g. OCS *zemlję*, is the result of analogical influence from the accusative plural.

Proto-Indo-European grounds.[28] The absence of hiatus in the remade Indo-Iranian desinence is probably inconclusive.[29] Similarly, only if one accepts that Germanic distinguishes between originally long and hiatal desinences and that the distinction is preserved also before final **-s*, Lane's arguments from Germanic for a Proto-Indo-European non-hiatal desinence may be accepted (see Ch. 2 § 3.2, "Historical remarks").

On the other hand, a hiatal desinence is indicated by the circumflex tone of GK *φυγῆς* and the absence of the operation of Saussure's and Leskien's Laws in LI *viẽtos* AP 2. It is possible, however, that the Greek circumflex tone of the genitive singular was introduced under influence of the dative singular and genitive plural.[30] In Lithuanian we may assume that the circumflex tone of *galvõs* was introduced by analogy with the dative singular of the *ā*-stems and the genitive singular of the other stem-classes, especially the *ė*-stems, where the circumflex tone of gen. sg. *-ẽs* is the regular reflex of PBS **-i¹i̯ā²s*.

• *i*-stems – PIE **-éi̯s*: VED *matéḥ*, GK Hom. *πόληος*.

The Proto-Indo-European short desinence **-éi̯s* yielded a Proto-Balto-Slavic unaccented form **ˌminteı̯s* in accordance with the Mobility Law. The unaccented form is preserved in PS **ˌgasteı̯*, reflected in Old RU *ót noči dó noči*,[31] *béz lěnosti*,[32] RU *nóči*, ŠTK *nȍći*, ČAK *nȍći*, *dȍ noći* (besides *do noćé*), SLN *kostî*, SLNC *χu̯ọrəscä*.[33] The desinential accentuation of LI *žveriẽs* may have arisen by analogy with the *ā*- and *ė*-stems.

According to a more widespread point of view, the desinential accentuation of LI *žveriẽs* is original and CS **gȍsti* represents an innovation.[34] Support for original desinential accentuation is found in the genitive of the Russian

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28. This is the reconstruction assumed by Rix (1976: 132); Harðarson (1987: 90, 109 n. 27); Igartua (2001: 271–272 with fn. 1); Ringe (2006: 50); similarly Lane (1963: 166); see also Eichner (1974: 29 with fn. 8); Klingenschmitt (1992: 91); Schaffner (2001: 368–369).
29. Cf., however, Lane (1963: 166).
30. Thus Rix (1976: 132); Harðarson (1987: 109 n. 27); see also Eichner (1974: 29 fn. 8), on the *ī*-stem desinence.
31. Quoted from Vasil'ev (1929: 38–39).
32. Quoted from Dybo (1975: 10).
33. The non-desinential accentuation of the *i*-stem genitive singular is regarded as original in Slavic also by scholars like Lehr-Spławiński (1918: 231); Stankiewicz (1984 [1986]: 431; 1986c: 417; 1995: 63).
34. E.g. Sedláček (1914: 161); Kuryłowicz (1931: 60; 1938: 17; 1952 [1958]: 223–224); Pedersen (1933: 36): in Slavic "le gén. sing. s'est assimilé au datif"); Stang (1957 [1965]: 87–88, 183 n. 66; 1966a: 294); Sadnik (1959: 59); Dybo (1981: 28); Kortlandt (1975: 47): "the ictus was retracted after the loss of final

numerals 'five', 'six', 'nine' and 'ten': *pjatí*, *šestí*, *devjatí*, *desjatí*; as shown by ČAK *pêt*, *šêst*, *dëvet*, *dëset* and RU *dévjat'*, *désjat'*, these words belong to the mobile paradigm. Also, the occurrence of desinentially accented genitive singulars in the Old Russian *Čudovo New Testament* from 1348, e.g. *plotí*, *smertí*,[35] and in prepositional phrases in Russian dialects, e.g. *iz Tverí*, *do kostí*,[36] is taken as an argument in favour of original desinential accentuation of this form. As Stankiewicz has pointed out, however, especially in numerals there is a tendency towards syncretism of cases; the Russian desinential accentuation may be readily understood as analogical to the locative singular. The same applies to the Russian prepositional phrases mentioned above. According to Bulaxovs'kyj, place names like *Tver'* that are often used in the locative have desinential accentuation not only in the genitive but also in the dative singular.[37] This may be an indication that the final accentuation in the genitive of these words has arisen by analogy with the locative. These facts significantly reduce the value of the desinential accentuation of *Tverí* etc. as evidence of old desinential accentuation in the genitive singular of mobile *i*-stems.

- *u*-stems – PIE **-éu̯s*: VED *svādóḥ*; GK *ἡδέος*.

Like the corresponding *i*-stem form, the genitive singular of the *u*-stems regularly became unaccented in Proto-Balto-Slavic by the Mobility Law. The unaccented form is preserved in Slavic, whereas in Lithuanian the desinential accentuation of the *ā*- and *ė*-stems has been introduced. Even more than the *i*-stem genitive singular, desinential accentuation in CS **sadù*[38] is reached more by deduction from LI *lietaũs* than by reconstruction on Slavic material, which points to CS **sâdu*.

**s* in order to avoid homonymy with the locative"; cf. the discussion in Kolesov (1972: 75–79).

35. Quoted from Stang (1957 [1965]: 87).
36. Quoted from Kuryłowicz (1952 [1958]: 223).
37. Bulaxovs'kyj (1955 [1980]: 280).
38. E.g. Dybo (1981: 28; 2000b: 57); Dybo, Zamjatina and Nikolaev (1990: 48); see also Stang (1957 [1965]: 81).

Dative singular

Table 21. Development of the accentuation of the dative singular

PIE		PBS		LI		PS	CS
**longóei̯*	>	**ˌlāʾngōi̯*	>	*lángui*	>	**ˌlāngāu̯*	**lǫ̂gu*
**gʰoləu̯áh₂ai̯*	>	**ˌgāʾlu̯āi̯*	>	*gálvai*	>	**ˌgālu̯āi̯* → **-ˈu̯āi̯*	**gôlvě* → **-vě̀*
**mn̥téi̯(ei̯)*	>	**ˌminteⁱ̯*	>	*ãkie* dial.	>	**ˌgasteⁱ̯*	**gȍsti*
**sodéu̯ei̯*	>	**sōʾˈdau̯ei̯*		(*líetui*)	→	?**sādaˈu̯ei̯*	?**sadovì*

• *o*-stems – PIE **-óei̯*: VED *devā́ya* (OAV, YAV *ahurāi*), GK *ἀγρῷ*.
A Proto-Indo-European hiatal desinence is established on the basis of internal reconstruction, the desincence consisting of the thematic vowel **-o-* plus the ending **-ei̯*. This is confirmed by the Greek circumflex tone. A few cases of disyllabic scansion are found in Indo-Iranian.[39] The desinence does not attract the accent by Saussure's Law in Lithuanian, e.g. *alkui* AP 2. The unaccentedness of the form in Proto-Balto-Slavic is in accordance with the Mobility Law.

• *ā*-stems – PIE **-áh₂ai̯*: VED *jihvā́yai*, GK *φυγῇ*.
The reconstruction PIE **-ah₂ai̯* is based on internal evidence, the suffix **-ah₂-* being followed by the ending **-ei̯*, which is always in full grade. This reconstruction is confirmed by the circumflex tone of GK *φυγῇ*. The remade Indo-Iranian desinence **-āi̯āi̯* is inconclusive. The expected unaccented form resulting from a hiatal desinence is preserved in Lithuanian. In Slavic there is a strong tendency towards desinential accentuation under influence of the *ā*-stem locative singular, from which the dative differed only in accentuation. The original accentuation is preserved in certain Štokavian words, e.g. *glâvi*, and in Old and dialectal Russian.[40]

• *i*-stems – PIE **-éi̯(ei̯)*: VED *matáye*.
The expected desinence PIE **-éi̯ei̯*, consisting of the suffix **-ei̯-* plus the ending **-ei̯*, is found in Indo-Iranian. In Balto-Slavic, a haplological change of **-ei̯ei̯* to **-ei̯* seems to have taken place. Since reflexes of **-ei̯* are apparently found also in Celtic and Italic, it is possible that the haplology had taken

39. See Hollifield (1980: 23).
40. Bulaxovs'kyj (1924 [1980]: 518) with references; Stang (1957 [1965]: 61); Garde (1976, 1: 27); the non-desinential accentuation is regarded as secondary by Brandt (1880: 217 fn. 1); Maretić (1890: 59).

place already in the proto-language.[41] If we assume that the desinence was **-eḭ* when the Mobility Law operated, the Proto-Balto-Slavic unaccented form is regular.

• *u*-stems – PIE **-éu̯eḭ*: VED *svādáve*.

The reconstruction of the Proto-Balto-Slavic accentuation of the *u*-stem dative singular is rendered difficult by the substitution of the desinence in Lithuanian by the *o*-stem desinence and by the loss of the *u*-stems as a separate stem-class in Slavic. In adverbs like RU *domój*, *dolój*, UKR *domív*, *dolív*, which preserve the *u*-stem dative singular form, we find final accentuation, which is the expected outcome of a Proto-Indo-European non-hiatal disyllabic desinence. Most scholars, however, reconstruct this form with non-desinential accentuation in Common Slavic.[42]

Instrumental singular

Table 22. Development of the accentuation of the instrumental singular

PIE		PBS		LI		PS	CS
**longéh₁*, **-óeh₁*	>	**ˌlāˀngōˀ*	>	*lángu*		(**ˌlāngami*)	(**lǫ̑gomъ*)
**gʰoləu̯áh₂(a)h₁+*N*	>	**ˌgāˀlu̯āˀn*	>	*gálva*		(**gālu̯aˈi̯ān*)	(**golvojǫ̀*)
(**mn̥tíh₁*, **-i̯éh₁*)		**minˈtimi*	⟹	*širdimì*	>	**gastiˈmi*	*gostь̀mъ*
(**sodúh₁*, **-u̯éh₁*)		**sōˀˈdumi*	⟹	*lietumì*	>	**sādu̯ˈmi*	**sadь̀mъ*

• *o*-stems – PIE **-éh₁*, **-óeh₁*: VED *yajñā́*.

In Indo-Iranian the original desinence of the instrumental plural, which is usually replaced by *-ena* in Vedic, counts as one syllable in the metre, pointing to a non-hiatal desinence. From the point of view of internal reconstruction we expect a Proto-Indo-European desinence **-e-h₁*,[43] consisting of the

41. Thus Meillet (1914b); similarly Stang (1966a: 136, 207); cf. Meiser (1998: 139): PIE **-eḭ-eḭ* > Proto-Italic **-eḭ* by haplology; Klingenschmitt's rejection of a connection between the Italo-Celtic and Balto-Slavic evidence for PIE **-eḭ* is based on his assumption that **-eḭ* would become acute in Balto-Slavic (1992: 106–107).
42. E.g. Pedersen (1905: 362): "Auf das adverbielle *domój* 'nach hause' […] und *dolój* 'herab' […] möchte ich kein allzu grosses gewicht legen, da diese dative schon in uralter zeit von dem paradigma losgerissen gewesen sein können"; Stang (1957 [1965]: 81); Dybo (1981: 28); Stankiewicz (1984 [1986]: 429).
43. Rasmussen (1989a: 141 with fn. 26).

e-grade of the thematic vowel[44] plus zero grade of the instrumental ending. The *e*-vocalism of the desinence is preserved in Germanic pronouns like GO *ƕe*, *þe*. In other instances we find *o*-vocalism, e.g. OHG instr. sg. *tagu*, LI *lángu*, LV *tẽvu*, which is usually considered to be the reflex of PIE **-oh$_1$*.[45] Alternatively we may assume that the desinences with *o*-vocalism reflect **-o-eh$_1$* with introduction of the full grade of the ending from the consonant stems;[46] cf. the reconstruction **-ah$_2$-ah$_1$* in the *ā*-stems. This development was facilitated by the coexistence of desinences from the proterokinetic and hysterokinetic paradigms in the *i*- and *u*-stems, cf. VED instr. sg. *matī́* < **-í-h$_1$* and *matyā́* < **-i̯-éh$_1$*.

A desinence **-óeh$_1$* would yield an unaccented form with an acute desinence in Proto-Balto-Slavic, i.e. **ˌlāˀngōˀ*, preserved in LI *lángu*. The Slavic evidence is more difficult. According to Stang, the form had non-desinential accentuation in Proto-Slavic, i.e. PS **ˌlāngami* > ŠTK *grâdom*, which would point to unaccentedness also of the original form corresponding to LI *lángu*.[47] It seems reasonable to reconstruct a Proto-Balto-Slavic unaccented form in accordance with the unambiguous evidence of Lithuanian.

- *ā*-stems – PIE **-áh$_2$(a)h$_1$*: VED adv. *doṣā́*, GK adv. *κρυφῆ*.

Internal reconstruction of Proto-Indo-European suggests a desinence **-áh$_2$-h$_1$*, consisting of the suffix **-ah$_2$-* plus zero grade of the ending. As in the instrumental singular of the *o*-stems, the full grade of the ending may have been introduced in this form at an early stage, yielding a desinence **-áh$_2$-ah$_1$*.[48] In the Indo-Iranian metres the desinence *-ā* is monosyllabic; but since it is possible that the new desinence VED *-ayā*, OAV *-aiiā* of pronominal origin has replaced **-aā* from **-ah$_2$ah$_1$*, the evidence is inconclusive. If Greek adverbs like *κρυφῆ* 'in secret' are petrified instrumental forms,[49] they support the reconstruction of a hiatal desinence.

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44. As mentioned earlier, the thematic vowel was **-e-* if followed by an unvoiced segment, **-o-* if followed by a voiced segment (Rasmussen 1989a: 139).
45. Rasmussen (1989a: 141 fn. 26): secondary spread of *o*-vocalism from other case forms; Meiser (1998: 34, 128); Berthold Forssman (2001: 114).
46. A desinence PIE **-oeh$_1$* is, for independent reasons, assumed by Miguel Carrasquer Vidal (pers. comm.).
47. Stang (1964 [1970]; 1966a: 298); see also Dybo (1981: 28–29).
48. A proto-form with laryngeal hiatus is also assumed by Hollifield (1980: 25, 45, 50); Klingenschmitt (1992: 90–91); Meiser (1998: 128, 132); Ringe (2006: 50) has **-éh$_2$(e)h$_1$*.
49. See Brugmann (1892 [1911]: 190); Schwyzer (1939 [1968]: 550); Klingenschmitt (1992: 90); Sihler (1995: 268).

The hiatal desinence regularly yielded a Proto-Balto-Slavic unaccented form *$_{|}gā^{ʔ}l̥ā^{ʔ}n$ by the Mobility Law, preserved in LI *gálva*. In Balto-Slavic the desinence was extended by a nasal of uncertain origin, e.g. East LI *runkù*, LV *rùoku* and the Lithuanian definite adjective *mažą́-ja*;[50] the acute tone resulting from *-*Vh* was preserved in Lithuanian, e.g. *vietà* AP 2 (see Ch. 3 § 1.3). In Slavic, where PBS *-*ān* was replaced by a pronominal desinence *-*aį̯ān*, the rising tone of ČAK *gorún* and SLN *gorọ́* points to original accent on the final syllable of the desinence; the accent on the first syllable of the desinence in Russian *golovóju* is taken from the corresponding AP *b* form.[51] The desinential accentuation of the Slavic form was probably introduced secondarily together with the extended desinence.

- *i*-stems – PIE *-*íh₁*, *-*i̯éh₁* > VED *matī́*, *-yā́*.

The original desinence of the *i*-stems was replaced by *-*imi* at a pre-stage of Proto-Balto-Slavic; cf. ARM instr. sg. *baniw* from *-*ibʰi*. We may assume that the form was accented on the first syllable of the desinence in pre-Proto-Balto-Slavic and remained unaffected by the Mobility Law, yielding PBS **min*$^{|}$*timi*. As shown by the North West Žemaitian forms ending in *-mi*, LI instr. sg. *-imì*, *-umì* reflects pre-LI *-*i*$^{|}$*mīʔ*, *-*u*$^{|}$*mīʔ* with a final long acute vowel introduced from instr. pl. *-*i*$^{|}$*mīʔs*, *-*u*$^{|}$*mīʔs*.[52] The accentuation of the final syllable of the desinence in Lithuanian is due to Saussure's Law.[53] In Slavic, **gas*$^{|}$*timi* developed into PS **gasti*$^{|}$*mi* by Dybo's Law. Because of the introduction of the new desinence *-*i̯i̯ān* in the feminine *i*-stems, however, the direct evidence for the accentuation of the original form in *-*imi* is limited.[54]

- *u*-stems – PIE *-*úh₁*, *-*u̯éh₁*: VED *paśvā́* (OAV *xratū*, *xraϑβā*).

Like in the *i*-stems, the original desinence of the instrumental singular of the *u*-stems was replaced with *-*umi* in pre-Proto-Balto-Slavic; cf. ARM instr. sg. *zgestu* < *-*ubʰi*. Desinentially accented words like pre-PBS*-*sō*$^{|}$*dumi* retained the accent on the first syllable of the desinence in Proto-Balto-Slavic in accordance with the Mobility Law. The long acute final vowel of the instrumental plural was introduced also in the singular in Lithuanian (see above on the *i*-stem instrumental singular), whence LI *lietumì* by Saussure's Law. The desinential accentuation of PS **sādu*$^{|}$*mi*, by Dybo's Law from **sā*$^{|}$*dumi*,

50. Stang (1966a: 199); Endzelīns (1971a: 144).
51. Stang (1957 [1965]: 62).
52. Stang (1966a: 209, 215); Zinkevičius (1966: 230); Kortlandt (1975: 51).
53. Olander (2004: 409–410).
54. See Dybo (1981: 30).

is preserved for example in Old RU *činómъ*, *peredstanómъ* and in modern Russian adverbs like *krugóm*.[55]

Locative singular

Table 23. Development of the accentuation of the locative singular

PIE		PBS		LI		PS	CS
**longói̯*	>	**ˌlāʾngai̯*	>	*vãkarie* dial.	⇒	**ˌlāngāi̯*	**lǫ̂ʒě*
**gʰoləu̯áh₂i*, **-i̯*	>	**gāʾlˈu̯āʾi̯*		(*galvojè*)	>	**gālˈu̯āi̯*	**golvè̋*
**mn̥téi̯*	>	**minˈtēi̯*		(*širdyjè*)	>	**gasˈtēi̯*	**gostì*
**sodéu̯*, **-éu̯i*	>	**sōʾˈdāu̯*		(*lietujè*)	>	**sāˈdāu̯*	**sadù*

• *o*-stems – PIE **-ói̯*: VED *devé*, GK *Ἴσθμοῖ*.

The expected Proto-Balto-Slavic unaccented form reflecting a Proto-Indo-European short desinence in accordance with the Mobility Law is preserved in Slavic. The Common Slavic final **-ě*, from PS **-āi̯*, is the result of the introduction of a long vowel in the desinence by analogy with the locative singular of the other stem-classes, see Ch. 2 § 4.2, "Laryngealistic view". For the tone of the Greek form see Ch. 2 § 2.2. In Lithuanian the paradigmatic case form has been extended by a postposition, but the original desinence is still seen in adverbs like *namiẽ* (cf. *nãmas* AP 4), in dialectal forms like *oriẽ*, *vãkarie* (*óras* AP 3, *vãkaras* AP 3) and in the adessive, e.g. *dievíep* (*diẽvas* AP 4).[56] The Lithuanian data do not allow us to draw a safe conclusion about the original accentuation of this form. I agree with Kortlandt in regarding the desinential accentuation of *namiẽ* etc. as secondary, probably under influence of the locative singular of the other stem-classes.[57]

• *ā*-stems – PIE **-áh₂i*, **-áh₂i̯*: VED *jihvā́yām*, GK adv. *ʔπάλαι*

The desinential accentuation of PS **gālˈu̯āi̯* indicates that Balto-Slavic had generalised the prevocalic variant of the desinence, PIE **-áh₂i̯*, which retained the accent when the Mobility Law operated. This syllabification may also be

55. Stang (1964 [1970]: 111), from where the Old Russian forms are quoted; (1966a: 298).
56. Stang (1966a: 182–183, 298–299).
57. Kortlandt (1975: 48–49); while I agree with Kortlandt in his conclusion, I cannot accept his argument that the Slavic non-desinential accentuation "must be old because it is the only stem-stressed locative and lacks a model for analogical development"; as Stang has pointed out (1966a: 298–299), the non-desinential accentuation of the *o*-stem locative singular might have arisen by analogy with the other singular forms of the *o*-stems.

required by LA *-ae*.[58] If GK adv. *πάλαι* 'long ago' represents an old locative form, it points to **-ah₂i*. The consonantal variant in **-i̯* was supported by the desinences of the *o*- and *i*-stem locative singular, where the locative ending **-i̯* was postvocalic and, accordingly, always consonantal. The addition of a postposition renders the Lithuanian form inconclusive.

- *i*-stems – PIE **-ḗi̯*: VED *srutā́*, *iṣṭáu*, GK Hom. *πόληϊ*.

The long desinence PIE **-ḗi̯* from pre-PIE **-ei̯i*[59] remained accented in PBS **min'tēi̯* and PS **gas'tēi̯*, which is well attested in the Slavic languages. The Slavic infinitive, which reflects an old *i*-stem locative singular, also points to Proto-Balto-Slavic desinential accentuation.[60] If an infinitive like ŠTK *drijèti* < PS **dēr'tēi̯* (CS **dertì*) < PBS **dē²r'tēi̯* < PIE **derətḗi̯* had been unaccented in Proto-Balto-Slavic, we would have had ŠTK †*drȉjeti*; if it had been accented on the first syllable, we would have had †*drẽti*. Because of the extension of the original desinence by a postposition in Lithuanian, the Baltic accentuation of the paradigmatic locative singular is difficult to ascertain.[61] The Lithuanian infinitives do not provide firm evidence on the original place of the accent.[62]

- *u*-stems – PIE **-ḗu̯*, **-éu̯i*: VED *sūnávi*, *paśáu*, GK *ἡδεῖ*.

The desinence PIE **-ḗu̯*, originally an analogical formation to the *i*-stem locative singular,[63] retained its accent in Proto-Balto-Slavic in accordance with the Mobility Law. The desinential accentuation is preserved in Slavic, while the extension of the form by a postposition in Lithuanian makes the Baltic data inconclusive.

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58. Cf. Sihler (1995: 270): LA *-ae* < **-āi̯*, with analogical **ā*; but Meiser (1998: 132): Early Latin disyllabic scansions pointing to PIE **-ah₂i*.
59. Rasmussen (1978 [1999]: 47); Sihler (1995: 314).
60. See Rasmussen (1985 [1999]: 184–195; 1992b [1999]: 473–474).
61. See Stang (1966a: 210–211).
62. Stang (1957 [1965]: 166; 1966a: 447–449, 471–472).
63. Thus e.g. Sihler (1995: 324).

Nominative-accusative dual

Table 24. Development of the accentuation of the nominative-accusative dual

PIE		PBS		LI		PS	CS
**longóh₁*, **-ṓ*	→	**ˌlāˀngōˀ*	>	*lángu*	>	**ˌlāngā*	**lǫ̑ga*
**k̂m̥tói̯h₁*	→	**ˌśimtāˀi̯*		–	>	**ˌsutāi̯*	**sъ̑tě*
**gʰoləu̯áh₂ih₁*	>	**ˌgāˀlu̯āˀi̯*	>	*gálvi*	>	**ˌgālu̯āi̯*	**gôlvě*
**mn̥tíh₁*	→	**ˌmintīˀ*	>	*šìrdi*	>	**ˌgastī*	**gȍsti*
**sodúh₁*	→	**ˌsōˀdūˀ*	>	*líetu*	>	**ˌsādū*	**sâdy*

• Masc. *o*-stems – PIE **-óh*, **-ṓ*: VED *devā́*, *deváu*, GK *ἀγρώ*.

The original form of the desinence of the masculine *o*-stem nominative-accusative dual is debated. The monosyllabic scansion in Indo-Iranian indicates that the desinence did not contain a laryngeal hiatus. The acute tone of GK *ἀγρώ* also points to a Proto-Indo-European non-hiatal desinence; the acute tone of LI *alkù* AP 2 suggests a final laryngeal. From an internal point of view, one possibility is **-o-e*, consisting of the thematic suffix **-o-* plus the ending **-e* seen in the consonant stems, e.g. Old LI *žmûne* and perhaps Old Irish *carait*^{L}.[64] In order to account for the acute tone of GK *-ώ* and LI *-ù*, a pre-PIE contraction of **-oe* to **-ō* has been proposed.[65] Another possibility is **-o-h₁*, consisting of the thematic vowel with analogical *o*-grade plus the ending **-h₁* found in the nominative-accusative dual of the other stem-classes.[66] Other proposed reconstructions are **-o-h₃* and **-o-eh₁*;[67] the latter form would regularly yield the Proto-Balto-Slavic unaccented form with an acute desinence but is contradicted by the Greek acute *-ώ*. If the desinence was **-oh* in the proto-language, we would expect a Proto-Balto-Slavic desinentially accented form; in this case the unaccented form might have arisen by analogy with the nominative-accusative dual of the *ā*-stems, probably

64. Rasmussen (1989a: 130–136; 2003: 83–84 with fnn. 1–3); Szemerényi (1970 [1990]: 195); see also the discussion in Sihler (1995: 255–256, 265).
65. Rasmussen (1989a: 131–132 fn. 11); but cf. Ch. 3 § 1.3 of this study, where PIE **V̄* in final syllables is assumed to yield a non-acute vowel in Lithuanian.
66. Rix (1976: 141); Eichner (1985: 141 with fn. 41); Oettinger (1988: 358); Hoffmann and Forssman (1996: 119); Meiser (1998: 170); Malzahn (1999: 223); Schaffner (2001: 104); because of the Vedic variant *-au*, however, Mayrhofer (1989: 17) rejects a pre-form PIE **-oh₁*; but cf. Sihler (1995: 265).
67. The former reconstruction is given by Cowgill (1985a: 27); see also Sihler (1995: 256, 381–382); but cf. Rasmussen (2003: 92); the latter reconstruction is given by Nussbaum (1986: 285).

also under influence of the unaccented nominative and accusative plural of all stems.

• Neuter *o*-stems – PIE **-ói̯h₁*: VED *śaté*, GK *ζυγώ*.
A proto-form **ǩm̥tói̯h₁*[68] would probably yield pre-PBS **śim¹tā²i̯*, which would retain its desinential accentuation in Proto-Balto-Slavic by the Mobility Law. The unaccented form reflected by Proto-Slavic **¦sutāi̯*[69] may be analogical to the segmentally identical nominative-accusative dual of the *ā*-stems.

• *ā*-stems – PIE **-áh₂ih₁*: VED *yugé*, GK Hom. *Ἀτρεΐδᾱ*.
Although there are hardly any cases of disyllabic scansion of the desinence in Indo-Iranian,[70] the reconstruction **-ah₂ih₁* is generally accepted.[71] The hiatal desinence regularly yielded an unaccented form in Proto-Balto-Slavic via the Mobility Law. The acute tone of Lithuanian *rankì* is regular, cf. the parallel structure **-VhVh* of the *ā*-stem instr. sg. **-ah₂ah₁*, which also yielded an unaccented form with an acute desinence; see Ch. 3 § 1.3. The acute tone of LI *ė*-stem *gerklì* is probably analogical to the *ā*-stems; PBS **-i̯āi̯* would yield a circumflex tone in Lithuanian.

• *i*-stems – PIE **-íh₁*: VED *ūtī́*, GK *πόλει*.
If we accept the usual reconstruction PIE **-íh₁*, unaccented PBS **¦mintī²* must be regarded as secondary since a long desinence yielded desinential accentuation in Proto-Balto-Slavic. The unaccented form may have been introduced by analogy with the dual of the *ā*-stems and the nominative and accusative plural of all stems. It should be noted that if we posit a proto-form **-íih₁*,[72] consisting of stem suffix **-i-* plus the ending **-ih₁* also found in the *ā*-stems, the unaccented form PBS **¦mintī²* with an acute desinence would be regular.

• *u*-stems – PIE **-úh₁*: VED *bāhū*, GK Hom. *ἠδέε*.
The expected Proto-Balto-Slavic desinential accentuation of this form was replaced by the unaccentedness of the *ā*-stem nominative-accusative dual under influence of the nominative and accusative plural of all stems.

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68. Thus e.g. Rix (1976: 141); Rasmussen (1989a: 139); Sihler (1995: 265); Meiser (1998: 170).
69. See Bulaxovs'kyj (1946 [1980]: 122).
70. Hollifield (1980: 25).
71. E.g. Rix (1976: 135); Rasmussen (1979: 19); Mayrhofer (1989: 17); Meiser (1998: 170); but cf. Sihler (1995: 273), expecting PIE **-eh₂h₁* or **-eh₂(h₂)e*.
72. Thus Rasmussen (1979: 44).

Nominative plural

Table 25. Development of the accentuation of the nominative plural

PIE		PBS		LI		PS	CS
"**longói̯*"	>	**ˌlāˀngai̯*		(*langaĩ*)	>	**ˌlāngai̯*	**lǫ̑zi*
**k̂m̥táh₂*	>	**śimˈtāˀ*		–	>	**suˈtā*	**sъtà*
**gʰoləu̯áh₂as*	>	**ˌgāˀlu̯ās*	>	*gálvos*	>	**ˌgālu̯ū*	**gôlvy*
**mn̥téi̯es*	→	?**ˌminteı̯es*		(*šìrdys*)	>	**ˌgastii̯e*	**gòstьje*
**sodéu̯es*	→	**ˌsōˀdau̯es*	>	*líetous* dial.	>	**ˌsādau̯e*	**sâdove*

• Masculine *o*-stems – pronominal PIE **-ói̯*: VED *té*, GK *ἀγροί*.

The expected Proto-Balto-Slavic unaccented form is unambiguously preserved in PS **ˌlāngai̯* > RU *čérti*, prt. pl. *býli*;[73] for the relationship between PIE **-oi̯* and CS **-i* see Ch. 2 § 4.2, "Laryngealistic view". In Lithuanian we find nominal *langaĩ* vs. pronominal *tiẽ* vs. adjectival *gerì*, *geríeji*. Since the prehistory of the Lithuanian desinences is rather unclear, I shall not base any assumptions on them.[74] It is likely that the desinences at least partly continue the original neuter plural desinence PIE **-áh₂* > PBS **-ˈāˀ*, later extended with the reflex of **-i*(*h*).

• Neuter *o*-stems – PIE **-áh₂*: VED *havyā́*, GK *ζυγά*.

The expected outcome of a Proto-Indo-European form with a long desinence is Proto-Balto-Slavic desinential accentuation, preserved in Slavic **suˈtā*; Lithuanian offers no safe evidence on this form. It is worth noting that in the nominative-accusative singular of the neuter *o*-stems, the Mobility Law produced an unaccented form. The mobility of the type RU nom.-acc. sg. *póle* vs. pl. *poljá* is thus the regular outcome of a pre-Proto-Balto-Slavic paradigm with columnar desinential accentuation, as directly attested in Vedic and Greek. While this observation does not exclude that these stems were mobile in Proto-Indo-European as indicated by Germanic (see Ch. 2 § 3.3,

73. Stang (1957 [1965]: 75; 1966a: 299); Garde (1976, 1: 27); Dybo (1981: 26); a reconstruction of desinential accentuation in Proto-Slavic ("**razt̀* (?)") in accordance with LI *langaĩ* as proposed by Dybo, Zamjatina and Nikolaev (1990: 47) is unjustified.
74. For the problematic relationship between these desinences see Stang (1966a: 66–68, 184); Eichner (1985: 157–161) with references; Kortlandt (1993); Hock (2005: 17) with references.

"Nominal system", and § 4.3, "Nominal system"), it neutralises the Slavic evidence on this question.[75]

• *ā*-stems – PIE **-áh₂as*: VED *jihvā́(sa)ḥ*, GK *φυγαί*.
A Proto-Indo-European hiatal desinence consisting of the suffix **-ah₂-* plus the ending **-es* is assumed primarily on the basis of internal reconstruction. The evidence of the Indo-Iranian metres for disyllabic scansion of this form is inconclusive.[76] The hiatal desinence yields unaccentedness as attested by LI *gálvos* and RU *gólovy*. For the development of pre-PS **-ās* to PS **-ū* see above on the *ā*-stem genitive singular.

• *i*-stems – PIE **-éi̯es*: VED *matáyaḥ*, GK *τρεῖς*.
It is difficult to give a precise reconstruction of the Proto-Balto-Slavic desinence of the *i*-stem nominative plural. The Lithuanian desinence *-ys* probably does not reflect PIE **-ei̯es*;[77] and it is debatable whether the phonetically regular Proto-Slavic reflex of PIE **-ei̯es* is the desinence **-ije* of the masculine or **-ī* of the feminine *i*-stems.[78] If the pre-Proto-Balto-Slavic desinence was disyllabic **-ei̯es*, the unaccented form found in Lithuanian and Slavic is irregular. It may then be analogical to the nominative plural of the *o*- and *ā*-stems. If Kortlandt is right in tracing back LI *ãkys*, *sū́nūs* to PIE **-íhes*, **-úhes* from the *īs*- and *ūs*-stems respectively,[79] the unaccented forms may be in accordance with the Mobility Law.

• *u*-stems – PIE **-éu̯es*: VED *svādávaḥ*, GK *ἡδεῖς*.
The unaccented form indicated by LI dial. *líetous*[80] and PS **ˌsādau̯e* is not in accordance with the Mobility Law, which predicts Proto-Balto-Slavic desinential accentuation of the reflexes of Proto-Indo-European non-hiatal disyllabic forms. We may assume influence from the nominative plural of the *o*-stems. See also above on the *i*-stem nominative plural.

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75. Similarly Pedersen (1905: 333–334); Kul'bakin (1906: 257–258); van Wijk (1923 [1958]: 72–73); Klingenschmitt (1994: 249); Schaffner (2001: 109–111); cf., on the other hand, Hirt (1895: 250; 1929: 243); Kim (2002: 51–52).
76. In Avestan there are no cases of disyllabic scansion of this desinence; the evidence for disyllabic scansion in Vedic is regarded as insufficient by Arnold (1905 [1967]: 83); cf. Hollifield (1980: 22–23).
77. Stang (1966a: 189–190, 211–212).
78. See Rasmussen (1993: 476–477); Hock (1995: 78–79 with fn. 16).
79. Kortlandt (1975: 42).
80. Quoted from Stang (1966a: 216); the standard form *líetūs* is a secondary formation.

Accusative plural

Table 26. Development of the accentuation of the accusative plural

PIE		PBS		LI		PS	CS
**longóns*	>	**ˌlāˀngans*	>	*lángus*	>	**ˌlāngū*	**lǫ̑gy*
**gʰoləu̯áh₂n̥s*	>	**ˌgāˀlu̯ās*	>	*gálvas*	>	**ˌgālu̯ū*	**gôlvy*
**mn̥tíns*	>	**ˌmintins*	>	*šìrdis*	>	**ˌgastī*	**gȍsti*
**sodúns*	>	**ˌsōˀduns*	>	*líetus*	>	**ˌsādū*	**sâdy*

• Masculine *o*-stems – PIE **-óns*: VED *devā́n*, *-ā́m̐ś ca*, GK *ἀγρούς*.

The Indo-European languages show reflexes of both **-ons* (e.g. OAV *maṣ̌iiə̄n̥g*, YAV *haomą*)[81] and **-ōns* (e.g. VED *devā́n*), the former desinence being probably of nominal, the latter of pronominal origin.[82] While Old Prussian *-ans* is derivable from a desinence containing either a short or a long vowel, East Baltic points to **-ōˀns* (> LI adj. *gerùs*, def. *gerúosius*, LV adj. *mazus*, def. *mazuõs*). The Slavic evidence is inconclusive. The Proto-Balto-Slavic unaccented form is regular if from PIE **-ons* with a short vowel. I assume that when the Mobility Law operated, the desinence was **-ans* < PIE **-ons*, and the form regularly became unaccented. The long acute vowel of the East Baltic desinence may be the result of a phonetic lengthening of short vowels before final **-ns*, i.e. PBS **-Vns* > **-V̄ˀ(n)s*.[83] Although admittedly I can find support of such a lengthening only in the accusative plural of the various stem-classes, there seems to be no counterexamples to it (prs. ptc. masc. nom. sg. *nešą̃s* probably reflects **-nts*).

81. See Brugmann (1892 [1911]: 221); Hoffmann and Forssman (1996: 88, 120).
82. Rasmussen (1989a: 139 with fn. 21); although the proposed distribution is nowhere preserved, it is supported by internal evidence since **-oi̯-* (in pre-PIE **-oi̯-ms* > PIE **-ōns*) was characteristic of the pronominal inflexion. A proto-form **-ons* is assumed e.g. by Brugmann (1892 [1911]: 224–225) with references; (1904: 391–392); Bartholomae (1895–1901 [1974]: 132); Debrunner and Wackernagel (1930: 102–103); Schwyzer (1939 [1968]: 556); Bräuer (1969: 27); Rix (1976: 140); Mayrhofer (1986: 159); Sihler (1995: 263). A proto-form **-ōns* is assumed e.g. by Vaillant (1958, 1: 34–35); Stang (1966a: 186); Szemerényi (1970 [1990]: 196); Meiser (1998: 136); Klingenschmitt (1992: 94) gives "**-o-ns* (**-ōns*?)"; see also Otrębski (1956: 15). According to Kortlandt (1975: 46) the ending of the accusative plural was **-hNs*.
83. A similar sound law was proposed by Streitberg (1894); see also Berthold Forssman (2001: 115); note the *o*-vocalism, not *a*-vocalism, of **-ōˀ(n)s* < PBS **-ans*.

• *ā*-stems – PIE **-áh₂n̥s*: VED *jihvā́ḥ*; GK *φυγᾱ́ς*.

The reconstruction of the original form of the accusative plural of the *ā*-stems is among the more difficult exercises of Indo-European comparative linguistics.[84] The usual reconstruction given is PIE **-ah₂s* or **-ās* (< pre-PIE **-āns*).[85] From the point of view of internal reconstruction we expect **-ah₂-n̥s*, consisting of the stem-suffix **-ah₂-* plus the accusative plural ending **-ns*. As a matter of fact, most of the material is derivable from a reconstruction PIE **-ah₂n̥s*.[86] In Indo-Iranian, PIE **-ah₂n̥s* > **-aas* > **-ās* yields the attested forms, albeit with only few cases of disyllabic scansion.[87] In Greek, PIE **-ah₂n̥s* > **-an̥s* > PGK **-ans* > GK *-ᾱς*. The Slavic *i̯ā*-stem accusative plural contains a nasal, e.g. OCS *zemlję*; a nasal is present also in Old Prussian *-ans* from **-āns*. The same desinence is found in East Baltic, e.g. def. adj. LI *gerą́sias* from **-āns-*, but here we also find reflexes of **-ās*, e.g. East LI *mergàs*, LV *rùokas*, def. adj. *mazãs*.[88] I consider the East Baltic desinence without a nasal secondary, either phonetically or by way of analogy.[89]

The Proto-Indo-European desinence can thus be reconstructed as hiatal **-ah₂n̥s*, regularly yielding unaccented PBS **ˌgāˀlu̯āns* by the Mobility Law. The acute tone of the desinence shown by LI *vietàs* AP 2 has arisen by the development of **-Vns* > **-V̄ˀ(n)s* proposed above in the analysis of the *o*-stem accusative plural.

• *i*-stems – PIE **-íns*: VED *sūrī́n*, *-ī́m̐ś ca*, GK Hom. *πόλῑς*.

The desinence regularly became unaccented in Proto-Balto-Slavic by the Mobility Law. The acute tone of LI acc. pl. *akìs* AP 4 is explainable along the same lines as the *o*-stem accusative plural (see above).

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84. See the discussion in Sihler (1995: 254) and Simkin (2004: 60 with fnn. 505–509).
85. E.g. Brugmann (1892 [1911]: 225; 1904: 392); Bartholomae (1895–1901 [1974]: 132); Debrunner and Wackernagel (1930: 59, 124); Stang (1965 [1970]: 43; 1966a: 135, 200); Rix (1976: 75, 133; 1986: 587); Eichner (1980: 129 fn. 41); Mayrhofer (1986: 132 fn. 141, 163–164); Klingenschmitt (1992: 91); Meiser (1998: 133).
86. This or similar reconstructions are assumed for the proto-language by Kuryłowicz (1927: 222–223); Rasmussen (1992d [1999]: 507 with fn. 2); Berthold Forssman (2001: 124); cf. Beekes (1988: 61; 1995: 182).
87. Lanman (1880: 363) lists three instances of disyllabic scansion as "hardly avoidable" (of a total of 393 occurrences of the *ā*-stem acc. pl. *-āḥ*).
88. See Stang (1966a: 200).
89. Thus Mathiassen (1989); see also Rasmussen (1992d [1999]: 507 fn. 2).

• *u*-stems – PIE **-úns*: VED *sūnū́n*, *-ū́m̥ś ca*, GK *ἡδεῖς*.

The desinence regularly became unaccented in Proto-Balto-Slavic by the Mobility Law. For the acute tone of LI acc. pl. *turgùs* AP 2 see the *o*-stem accusative plural above. Note that in Baltic and Slavic this form has merged phonetically with the accusative plural of the *o*-stems.

Genitive plural

Table 27. Development of the accentuation of the genitive plural

PIE		PBS		LI		PS	CS
**longóom*	→	**lāʾn|gōn*	>	*langų̃*	>	**lān|gu*	**lǫ́gъ*
**gʰoləu̯áh₂om*	→	**gāʾl|u̯ōn*	>	*galvų̃*	>	**gāl|u̯u*	**gólvъ*
**mn̥téi̯om*	>	**min|tei̯an*	>	*širdių̃*	>	**gasti|i̯u*	**gostь̀jь*
**sodéu̯om*	>	**sōʾ|dau̯an*	>	*lietų̃*	>	**sāda|u̯u*	**sadòvъ*

The ending of the Proto-Indo-European genitive plural should, in my opinion, be reconstructed as **-om*, producing the desinences **-o-om*, **-ah₂-om*, **-ei̯-om* and **-eu̯-om* in the vowel stems.[90] The desinences were remade in the separate Indo-European language branches, the over-all tendency being a replacement of **-om* with the more characteristic reflexes of **-oom*, **-ah₂om*. Only Slavic has unambiguously generalised the reflex of short PIE **-om*.[91] Old Prussian seems to have reflexes of both **-ōn* and **-an*, although this has been questioned. As Lithuanian *-ų* by all probability reflects PBS **-ōn*,[92] Proto-Balto-Slavic had both **-ōn* and **-an*.

90. Similarly Klingenschmitt (1992: 91, 94 and passim); Meiser (1998: 34, 131 and passim); cf. the discussion in Sihler (1995: 254–255).
91. Meillet (1922: 258) with references; Endzelīns (1971a: 136); Bräuer (1969: 25–26); Kortlandt (1983b: 170); most of these scholars also assume that Italic, Celtic and Old Prussian preserve reflexes of **-om*; Anders Richardt Jørgensen has pointed out to me that Celtic may display reflexes of both a short (Old Irish) and a long (Celtiberic) desinence in the genitive plural. A phonetic development of PIE **-ōm* (or **-ō̃m*) to CS **-ъ* is assumed by scholars like Stang (1957 [1965]: 96), with references to van Wijk and Pedersen; (1966a: 185); Rasmussen (1992b [1999]: 486–487); these scholars trace back the genitive plural of all Indo-European languages to a desinence containing a long vowel.
92. Kortlandt, however, assumes a development of PIE **-om* to PBS **-un* > LI *-ų* (1978c: 286–287).

• *o*-stems – PIE *-*óom*: VED *devā́ñ* (*jánma*), *devā́nām*, GK *ἀγρῶν*.

The reconstruction *-*o*-*om* is justified by internal reconstruction (thematic suffix *-*o*- plus ending *-*om*) and by the circumflex tone of GK *ἀγρῶν*. Except for a few cases where *-*ām* is preserved in Vedic, the expected desinence PII *-*aam* (or *-*ām*, depending on the regular reflex of a non-laryngeal hiatus) has been extended by *-*ān*-. Disyllabic scansion of the final vowel of VED *-ānām* and OAV *-anąm* is frequent in the metres.[93] According to the Mobility Law, a Proto-Indo-European hiatal desinence should yield an unaccented form in Proto-Balto-Slavic. The source of the desinential accentuation found in both Lithuanian and Slavic is probably to be found in the genitive plural of the *i*- and *u*-stems, where the desinential accentuation is in accordance with the Mobility Law.[94]

• *ā*-stems – PIE *-*áh₂om*: VED *jihvā́nām*, GK Hom. *ϑεᾶ́ων*.

The development of the genitive plural of the *ā*-stems is quite similar to that of the *o*-stems. A hiatal desinence, expected on the basis of internal reconstruction, is well preserved in the extended Proto-Indo-Iranian desinence *-*ānaam*. We expect unaccentedness in Proto-Balto-Slavic by the Mobility Law; the desinential accentuation is analogical to the genitive plural of the *i*- and *u*-stems.

• *i*-stems – PIE *-*éi̯om*, *-*i̯óm*: VED *matīnā́m* (YAV *haŝą́m*), GK *τριῶν*.

As shown by Slavic, Baltic being ambiguous,[95] Proto-Balto-Slavic had inherited a disyllabic desinence from the proto-language. Whether the *-*i*- of PS *-*iį̂u* arose phonetically or by analogy with other desinences of the *i*-stems is irrelevant to our purposes. The non-hiatal disyllabic desinence retained the accent in accordance with the Mobility Law.

• *u*-stems – PIE *-*éu̯om*, *-*u̯óm*: VED *svādūnā́m* (YAV *pasuuąm*), GK *ἡδέων*.

Slavic shows that Proto-Balto-Slavic had inherited a disyllabic desinence PIE *-*éu̯om*, which retained the accent in accordance with the Mobility Law.

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93. Interestingly, the four instances of the unextended desinence count as *-*ām* in the metre, not *-*aam*, see Sihler (1995: 255 fn. 1). Since **ā* is regularly shortened in the antepenultimate in pre-Avestan, an indirect indication of original *-*ānaam* is provided by the short first vowel of *-*anąm*; see Hoffmann and Forssman (1996: 60).
94. Micklesen, who also expects non-desinential accentuation in the genitive plural of the mobile Lithuanian and Slavic *o*- and *ā*-stems, assumes a similar analogy with the genitive plural of the *i*- and *u*-stems (1992: 289; 1995: 90).
95. Stang (1966a: 212–213).

In Baltic the *u*-stem desinence may have been substituted by that of the *o*-stems.[96]

Dative plural

Table 28. Development of the accentuation of the dative plural

PIE		PBS		LI		PS	CS
**longómos*	>	**lāʔn|gamas*	>	*langáms*	>	**lānga|mu*	**lǫgòmъ*
**gʰoləu̯áh₂mos*	>	**gāʔl|u̯āʔmas*	>	*galvóms*	>	**gāl|u̯āmu*	**golvámъ*
**mn̥tímos*	>	**min|timas*	>	*širdìms*	>	**gasti|mu*	**gostь̀mъ*
**sodúmos*	>	**sōʔ|dumas*	>	*lietùms*	>	?**sādu|mu*	?**sadь̀mъ*

The ending of the dative plural may be reconstructed as PIE **-mos*.[97]

- *o*-stems – PIE **-ómos*: VED *devébhyaḥ*.

The form was regularly accented on the first syllable of the desinence in Proto-Balto-Slavic, as it still is in Lithuanian. This accentuation corresponds to that of the Slavic form, where the accent was advanced from the first to the final syllable of the desinence by Dybo's Law, i.e. pre-PS **lān\|gamu* > PS **lānga\|mu*. The subsequent retraction of the accent from the weak reduced vowel yielded CS **lǫgòmъ*.[98] It should be noted that a competing, more recent, unaccented form PS **¦lāngamu* (CS **lǫ̂gomъ*) is also attested.[99]

- *ā*-stems – PIE **-áh₂mos*: VED *jihvā́bhyaḥ*.

The disyllabic non-hiatal desinence retained the accent on the first syllable in Proto-Balto-Slavic in accordance with the Mobility Law. This accentuation was preserved unchanged in LI *galvóms* and PS **gāl\|u̯āmu*; the latter accentuation is unambiguously reflected in SLN *goràm*.[100]

96. Stang (1966a: 217–218).
97. For the **-m-*, which was substituted by the **-bʰ-* of the instrumental plural in several branches of Indo-European, see Eichner (1974: 29 fn. 9a), following a proposal of Hoffmann; Beekes (1985: 143–144). For the final **-os* of the Proto-Indo-European dative plural see Olander (2005) with discussion and references.
98. Common Slavic desinential accentuation is also assumed by Stang (1957 [1965]: 75); Garde (1976, 1: 27); Dybo (1981: 29).
99. See Zaliznjak (1985: 276–277).
100. An alternative interpretation of the accentuation of the *ā*-stem dative, instrumental and locative plural, namely by Hirt's Law, is given by Kortlandt (1977: 321–322); Dybo (1981: 33–39); Garde's claim that Common Slavic had final

• *i*-stems – PIE **-ímos*: VED *matíbhyaḥ*.

The accent remained on the first syllable of the desinence in Proto-Balto-Slavic in accordance with the Mobility Law. This accentuation is preserved in LI *širdìms* and, with Dybo's Law, in PS **gasti|mu* (cf. Old RU *kostémъ*[101] < PS **kasti|mu*). However, we also find an unaccented variant in Slavic, e.g. Old RU *kóstemъ*, *pó ljudemъ*. In the locative plural of the *i*-stems we find a similar coexistence of desinentially accented and unaccented forms, e.g. Old RU *o kostéxъ* vs. *ná kostexъ*; cf. the accentuation of RU nom. pl. *déti*, *ljúdi*, gen. *detéj*, *ljudéj*, dat. *détjam*, *ljúdjam*, instr. *det'mí*, *ljud'mí*, loc. *détjax*, *ljúdjax*. Since the prehistory of the *i*-stem dative and locative plural is parallel, I shall treat these forms together.[102]

Note that the Slovincian paradigms sometimes adduced as evidence for non-desinential accentuation of the *i*-stem dative and locative plural,[103] e.g. nom.-acc. pl. *ʒìę̯cä*, *lãʒä*, gen. *ʒecḯ*, *läʒḯ*, dat. *ʒìę̯cĭm*, *lãʒĭm*, instr. *ʒecmḯ*, *lĕʒmḯ*, loc. *ʒìę̯cäχ*, *lãʒäχ*, are inconclusive since in pre-Slovincian the accent was retracted from a short final syllable to a preceding syllable. In fact, Slovincian rather points to desinential accentuation of the *i*-stem dative and locative plural as shown by polysyllabic stems like nom.-acc. pl. *χùo̯rəscä*, gen. *χərùo̯sc*(*ï*), dat. *χərùo̯scȯu̯m*, instr. *χərùo̯scmï* (*-camï*), loc. *χərùo̯scäχ*, where the accent has been retracted from a final syllable to the penultimate.

The unaccented forms of the type RU *détjam*, *détjax* (where the original *i*-stem desinences have been substituted with *i̯ā*-stem desinences without affecting the accentuation) also seem to be old, as there is no obvious model in Slavic on which they may have been patterned. To account for these forms, Kortlandt has proposed a Slavic accent retraction from a final reduced vowel to a preceding syllable; if this syllable was in medial position and contained a reduced vowel not followed by **-j-*, the accent was retracted further towards the beginning of the word.[104] If accepted, this accent retraction would imply that the *i*-stem dative and locative plural were accented on the final syllable before the operation of Dybo's Law, a view which is not in accordance with my view that it was Dybo's Law that gave rise to the final accentuation

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accentuation in the *ā*-stem dative and locative plural (1976, 1: 30) seems to rest on a misinterpretation of the material, see Olander (2004: 413 fn. 21).

101. This and the following Old Russian forms are quoted from Kolesov (1972: 89–93).
102. Cf. Stang (1957 [1965]: 88–90); Kolesov (1972: 88–93); Dybo (1981: 29).
103. Stang (1957 [1965]: 88–89); Kortlandt (1975: 15).
104. Kortlandt (1975: 15–16).

of these forms in Slavic.[105] Kortlandt's attempt to link this proposed accent retraction with the long vowel of ČAK gen. pl. *gór*, *vód*, SLN *gọ́r*, *vọ́d* is, in my opinion, rather unnatural, especially when it is taken into consideration that what we actually do find in these forms, i.e. a long neoacute vowel, is at variance with the unaccentedness shown by the Old Russian forms *pó ljudemъ*, *ná kostexъ* mentioned above. While one may perhaps follow Kortlandt in regarding the unaccentedness shown by the Old Russian forms as analogical, the *ad hoc* character of the accent retraction he has suggested is exposed by the assumption that a medial reduced vowel was skipped by the retraction, although at the same time medial reduced vowels were accented in forms like CS nom. sg. **otъ̀cъ*.

If we assume that the accentuation of the type RU dat. pl. *détjam*, loc. *détjax* reflects the original accentuation of ROOT NOUNS, it is in accordance with the Mobility Law and with the view that desinentially accented forms were accented on the first syllable of the desinence in Proto-Balto-Slavic. Thus, PIE dat pl. **ĝʰu̯ērmós*, instr. **ĝʰu̯ērbʰíhs*, loc. **ĝʰu̯ērsú* would regularly yield **ˌźu̯ērmas*, **źu̯ērˈmīˀs*, **ˌźu̯ērsu* by the Mobility Law and, with introduction of **-i-* from the *i*-stems and retention of the original accentuation, PS **ˌzu̯ērimu*, **zu̯ēriˈmī*, **ˌzu̯ērixu* > Old RU *zvě́rem*, *zvěrmì*, *o zvě́rjax*.[106] Since most root nouns became *i*-stems in Slavic, this scenario seems more likely than other explanations advanced.[107] As far as I am aware, however, there are no traces in the Slavic material of different accentual behaviour of original *i*-stems and root-nouns.

- *u*-stems – PIE **-úmos*: VED *svādúbhyaḥ*.

The Lithuanian form reflects Proto-Balto-Slavic accentuation of the first syllable of the desinence in accordance with the Mobility Law. The accentuation of the form in the Slavic languages is not sufficiently well attested as to allow a safe Proto-Slavic reconstruction,[108] but we may follow Stang in reconstructing desinential accentuation.[109]

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105. Olander (2004; 2007c); cf. Kortlandt (2004b: 72).
106. Quoted from Kolesov (1972: 174).
107. Apart from Kortlandt's attempt see Nahtigal (1922: 46): analogy with the nominative plural, and Stang (1957 [1965]: 90): retention of original root-accentuation.
108. See (Dybo 1981: 29).
109. Stang (1957 [1965]: 81).

Instrumental plural

Table 29. Development of the accentuation of the instrumental plural

PIE		PBS		LI		PS	CS
**longṓi̯s*	>	**lāˀnˈgōi̯s*	>	*langaĩs*	>	**lānˈgū*	**lǫgỳ*
**gʰoləu̯áh₂bʰi(h)s*	>	**gāˀlˈu̯āˀmīˀs*	→	*galvomìs*	>	**gālˈu̯āmī*	**golvắmi*
**mn̥tíbʰi(h)s*	>	**minˈtimīˀs*	>	*širdimìs*	>	**gastiˈmī*	**gostьmì*
**sodúbʰi(h)s*	>	**sōˀˈdumīˀs*	>	*lietumìs*	>	**sādu ˈmī*	**sadъmì*

• *o*-stems – PIE **-ṓis*: VED *deváiḥ*, GK *ἀγροῖς*.

The internal structure of the desinence of the instrumental plural of the *o*-stems is unclear. It may represent a development of pre-PIE **-o-bʰis* / **-o-mis*[110] or **-oi̯-bhis*,[111] or it may represent a hiatal desinence **-o-ei̯s*[112] or **-o-oi̯s*;[113] there is, however, no evidence for an athematic ending **-ei̯s* or **-oi̯s*, in contrast to other cases of contraction, e.g. thematic PIE dat. sg. **-o-ei̯* vs. athematic **-ei̯*. Disyllabic scansions of the desinence in Indo-Iranian are very rarely found.[114] Because of the shortening of pre-GK **-ōi̯s* to GK *-οῖς*, the evidence of the Greek circumflex is difficult to judge. I consider most plausible the reconstruction of a long non-hiatal desinence PIE **-ōi̯s*, whatever its ultimate origin.

In Lithuanian we find desinential accentuation; the shortening of PBS **-ˈōi̯s* to LI *-aĩs* is probably regular.[115] In Slavic, evidence of both unaccentedness and desinential accentuation is found, the latter being generally regarded as original, the former as analogical to the (nominative-)accusative plural.[116] The desinential accentuation thus reconstructible for Proto-Balto-Slavic is the regular reflex of a Proto-Indo-European long non-hiatal desinence.

• *ā*-stems – PIE **-áh₂bʰi(h)s*: VED *jihvā́bhiḥ*.

The accentuation of the first syllable of the desinence in Proto-Balto-Slavic as reconstructed on Slavic evidence is in accordance with the Mobility Law. The acute tone shown by e.g. ČAK *glavàmi* is the regular reflex of a Proto-Balto-Slavic long accented syllable. In Lithuanian the final accentuation of

110. Cowgill (1985b: 108); this view goes back to Bopp (Simkin 2004: 31).
111. Rasmussen (1989a: 141 fn. 24).
112. Klingenschmitt (1992: 94).
113. Rix (1976: 140).
114. See Hollifield (1980: 23).
115. Stang (1966a: 65, 186); cf. Hollifield (1980: 27).
116. Thus Stang (1957 [1965]: 73); Zaliznjak (1985: 268); see also Dybo (1981: 27); Garde (1976, 1: 27).

galvomìs is analogical to that of the *i*- and *u*-stems and above all the *ė*-stems, where the accent was advanced from the non-acute **-i-*, **-u-*, **-ē-* to the final syllable by Saussure's Law. While it is possible that the final accentuation was copied directly by the *ā*-stems,[117] it is perhaps more likely that the acute pre-LI **-āˀ-* first became circumflex by analogy with the other stems and then was subject to Saussure's Law. This would explain the apparently circumflex *-o-* of instr. pl. *viẽtomis* AP 2. Similar considerations are relevant for loc. sg. *viẽtoje*, dat.-instr. du. *viẽtom*, dat. pl. *viẽtoms*, loc. pl. *viẽtose*.[118]

- *i*-stems – PIE **-íbʰi(h)s*: VED *matíbhiḥ*.

The Proto-Balto-Slavic form **min˩timīˀs* from PIE **mn̥tíbʰihs* in accordance with the Mobility Law regularly yielded final accentuation in LI *širdimìs* by Saussure's Law and in PS **gasti˩mī* by Dybo's Law.[119]

- *u*-stems – PIE **-úbʰi(h)s*: VED *svādúbhiḥ*.

The Proto-Balto-Slavic desinential accentuation is in accordance with the Mobility Law. Later, PBS **sōˀ˩dumīˀs* yielded LI *lietumìs* by Saussure's Law and the less well attested form PS **sādu˩mī*[120] by Dybo's Law.

Locative plural

Table 30. Development of the accentuation of the locative plural

PIE		PBS		LI		PS	CS
**longói̯su*	>	**lāˀn˩gai̯su*		(*languosè*)	>	**lāngai̯˩xu*	**lǫ̀zě́xъ*
**gʰoləu̯áh₂su*	>	**gāˀl˩u̯āˀsu*	>	*šakósu* dial.	>	**gāl˩u̯āxu*	**golvā́xъ*
**mn̥tísu*	>	**min˩tisu*	⟹	*akýsu* dial.	>	**gasti˩xu*	**gostь̀xъ*
**sodúsu*	>	**sōˀ˩dusu*		(*lietuosè*)	>	**sādu˩xu*	**sadъ̀xъ*

117. See Endzelīns (1938 [1980]: 325); Kortlandt (1975: 51); cf. Rasmussen (1992b [1999]: 478): "Polarisierung der Mobilität" in instr. pl. *žiemomìs* AP 4, loc. pl. *žiemosè*.
118. To explain why Saussure's Law did not take place in *viẽtomis* etc., Stang (1966a: 289–290) assumed analogy with the genitive singular *viẽtos*; Kortlandt (1975: 49–51) proposes a dissimilation of the first laryngeal in loc. sg. **ròNkaHiH eN* > **ràn̥kāi̯ę̀'* with subsequent analogical elimination of the laryngeal in the other trisyllabic forms; a more straightforward explanation is that of Vermeer (2001: 153), who explains the accentuation of these forms as analogical to that of the corresponding forms of the other stem-classes with AP 2.
119. Olander (2004: 409–410); cf., for Lithuanian, Endzelīns (1938 [1980]: 325).
120. Final accentuation in Common Slavic is also assumed by Stang (1957 [1965]: 81); Dybo (1981: 28); cf. Zaliznjak (1985: 269).

• *o*-stems – PIE **-ói̯su*: VED *devéṣu*, GK Hom. *ἀγροῖσι*.

The secondary addition of a postposition in Lithuanian obscures the original accentuation.[121] In Slavic the locative plural is attested both as an unaccented form, e.g. Old RU *vó groběxъ*,[122] and with desinential accentuation, e.g. Old RU *grobě́x*, SLN *možẹ́x*, KAJ (Prigorje) *drebî*,[123] SLNC *zą̀bjẽ́χ*.[124] The latter accentuation is usually regarded as original.[125] It represents the reflex of PS **lāngai̯ˈxu*, by Dybo's Law from PBS **lāʔnˈgai̯su*, the accentuation of which is the expected outcome of the Mobility Law. The unaccented type Old RU *vó groběxъ* is probably analogical on the singular *vó grobě*.[126]

• *ā*-stems – PIE **-áh₂su*: VED *jihvā́su*.

The desinential accentuation attested in Lithuanian and Slavic is in accordance with the Mobility Law. In Slavic the accent is preserved on the first syllable of the desinence as shown by ČAK *glāvàh*, SLN *goràh*. In the Lithuanian dialects where the original desinence has been preserved the accent is usually on the second syllable of the desinence, e.g. *šakosù*; only in a few dialects the accent is on the first syllable of the desinence, e.g. *šakósu*.[127] The final accentuation of *šakosù* is probably analogical to the locative singular; the new form *šakosè* may also have played a role if we assume that the forms in *-su* and *-se* coexisted for some time; the latter form has received final accentuation because of the addition of a postposition.[128] It is difficult to decide whether forms like *šakósu* display preservation of the original accentuation or are secondary vis-à-vis the *šakosù* type,[129] but since the former accentuation is identical to that found in the corresponding Slavic form, I assume it is original.

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121. A few arguments in favour of original desinential accentuation are adduced by Stang (1957 [1965]: 75–76; 1966a: 299–300).
122. This and the following Old Russian form are quoted from Stang (1957 [1965]: 73, 76).
123. Quoted from Stang (1957 [1965]: 74).
124. The accentuation of the more common Slovincian form *břegã̀χ* (Lorentz 1903: 230, 238–239) is secondary, see Stankiewicz (1993: 308 n. 5).
125. Bulaxovs'kyj (1946 [1980]: 315–316, 323); Stang (1957 [1965]: 75); Dybo (1981: 27); both Old Russian variants are regarded as old by Zaliznjak (1985: 283), who points to a spread of the desinential accentuation from a centre.
126. This solution was pointed out to me by Lars Steensland (pers. comm.).
127. Zinkevičius (1966: 237).
128. Olander (2004: 410).
129. The latter view is taken by Zinkevičius (1966: 237) and Kortlandt (2004b: 71–72), who assume influence from the illative.

• *i*-stems – PIE **-ísu*: VED *matíṣu*; GK *τρισί*.

The desinential accentuation found in Lithuanian and partly in Slavic is in accordance with the Mobility Law. The Lithuanian dialects which have preserved the original desinence *-isu* usually show accent on the final syllable, e.g. *akisù*, *akysù* (with a secondary long vowel).[130] As in the locative plural of the *ā*-stems, in a few dialects the accent is on the penultimate, e.g. *akýsu*. The relation between *akysù* and *akýsu* is the same as that between *šakosù* and *šakósu* in the *ā*-stems. In Slavic we find both desinential accentuation and unaccentedness of this form, probably reflecting the accentuation of original *i*-stems and root nouns respectively; see above on the *i*-stem dative plural.

• *u*-stems – PIE **-úsu*: VED *svādúṣu*, *ἡδέσι*.

In Lithuanian there are hardly any traces of the original desinence PBS **-usu*.[131] The Slavic evidence is meagre but may point to Proto-Balto-Slavic desinential accentuation[132] in accordance with the Mobility Law.

Consonant stems

The nominative singular forms of various consonant stems were treated in the beginning of this subsection. The reconstruction of the accentuation of the remaining forms is made primarily on the basis of Lithuanian. The accentuation of some of the forms of consonant stems like LI *šuõ*, *duktẽ* is not in accordance with the Mobility Law, e.g. PIE gen. sg. **ĺ̂kunós*, **dʰugə₂trós* vs. LI *šuñs*, *dukteĩs*, where the final accentuation is analogical to the *ā*-stems; the original accentuation may be preserved in Slavic, e.g. RU *dóčeri*, ŠTK *kćèri*. The PIE nom. pl. **ĺ̂u̯ónes*, **dʰugə₂téres* would yield LI *šùnes*, **duktẽres* by the Mobility Law; the latter form has been normalised in accordance with the other stem-classes. Similarly, in the accusative singular and plural, LI *šùnį*, *šunìs* (with generalisation of the weak stem **ĺ̂kun-*) from PIE **ĺ̂u̯ónm̥*, **ĺ̂u̯ónn̥s* are in accordance with the sound laws, whereas LI *dùkterį*, *dùkteris* (for expected **duktẽrį*, **dukterìs*) from PIE **dʰugə₂térm̥*, **dʰugə₂térn̥s* have been normalised, perhaps already in Proto-Balto-Slavic, cf. Old RU acc. sg. *dóčerъ* / *dščérь*, acc. pl. *dóčeri* / *dščéri*.[133] For what it is worth, it may be noted that if we hypothetically assume that the final accentuation of the weak forms had been generalised in the paradigms of the consonant stems when

130. The Lithuanian dialectal forms are quoted from Zinkevičius (1966: 237); see also Stang (1966a: 213).
131. Stang (1966a: 218).
132. Thus Stang (1957 [1965]: 81); Dybo (1981: 28).
133. Quoted from Kolesov (1972: 104).

the Mobility Law operated, the development of pre-PBS acc. sg. **śu˥nin*, **dukte˥rin*, nom. pl. **śu˥nes*, **dukte˥res*, acc. pl. **śu˥nins*, **dukte˥rins* to PBS acc. sg. **˩śunin*, **˩dukterin*, nom. pl. **˩śunes*, **˩dukteres*, acc. pl. **˩śunins*, **˩dukterins* would be phonetically regular.

However the development may have been, I consider the normalisations proposed above trivial; the prehistory and history of the Balto-Slavic consonant stems are characterised by morphological assimilation to the vowel stems.

3.2. Verbal system

The reconstruction of the Proto-Balto-Slavic verbal system rests on less firm ground than that of the nominal system, above all because of the innovative character of the Baltic verbal system, which stands in contrast to the conservatism of the nominal system. It is important to bear in mind that the scope of the following analysis is to examine the systematic relationship between the Balto-Slavic mobile verbs and their Proto-Indo-European origins, not to present the prehistory of the accentuation of individual verbs. Therefore I shall stick to the *e*/*o*-verbs, leaving out of consideration the *i̯e*/*o*-, *ne*/*o*- and *ei̯e/o*-verbs unless they have something important to add. As the analyses in Ch. 3 § 1.2, § 3.2 and § 4.2 have shown, there are no unambiguous traces of paradigmatic mobility in the Baltic and Slavic athematic presents.

The originally desinentially accented paradigm, the type VED *tudáti*, has enjoyed a certain productivity in Baltic and Slavic, regardless of the ablaut grade of the root. In Lithuanian and Latvian most *e*/*o*-verbs belong to the originally mobile accent paradigm; similarly, in Slavic these verbs usually have AP *c*. This circumstance is of secondary relevance compared to the development of the accent paradigms themselves.

Present tense

Table 31. Development of the accentuation of the present tense

	PIE		PBS		LI		PS	CS
1 sg.	**supóh*	>	**su˥pōˀ*	>	?*supù*	→	**˩supān*	**sъ̏pǫ*
2 sg.	**supési*	>	**su˥pesi*		(*supì*)	>	**supe˥xei̯*	**sъpešì*
3 sg.	**supéti*	>	**su˥peti*		(*sùpa*)	>	**supe˥ti*	**sъpètь*
1 pl.	**supómos*	>	**su˥pamas*	→	?*sùpame*	>	**supe˥mu*	**sъpèmъ*
2 pl.	**supéte*	>	**su˥pete*	→	?*sùpate*	>	**supe˥te*	**sъpetè*
3 pl.	**supónti*	>	**su˥panti*		(*sùpa*)	>	**supan˥ti*	**sъpǫ́tь*

• 1 sg. – PIE *-*oh*: VED *tudā́mi* (OAV *pərᵊsā*); GK *φέρω*.

The desinence of the thematic present 1 singular may be reconstructed as PIE *-*ō* or *-*o-h*. Since the operation of Saussure's and Leskien's Laws in LI *šaukiù* (prs. ptc. *šaũkiąs*) constitutes an argument in favour of a desinence containing a laryngeal, I reconstruct the desinence as PIE *-*oh*; see Ch. 3 § 1.3, "Examination of Saussure's and Leskien's Laws". While the initial accentuation of Lithuanian *kláusiu* (prs. ptc. *kláusiąs*) probably reflects the accentuation of the Proto-Balto-Slavic immobile paradigm, forms like *supù* (prs. ptc. *supą̃s*) may preserve the desinential accentuation of mobile verbs (see Ch. 3 § 1.2, "Verbal system"), although the accentuation of these forms may also have arisen by the operation of Saussure's Law on forms with root-accentuation. Desinential accentuation would be in accordance with the Mobility Law.

Mainly on the basis of Old Russian, Bulgarian and Slovincian evidence, Stang has convincingly argued that the present 1 singular of the mobile paradigm had non-final accentuation in Common Slavic, e.g. Old RU *réku* AP *c* vs. *ne mogú* AP *b*.[134] In Bulgarian dialects we find 1 sg. *plètą* (*-am*) AP *c*, 3 sg. *pletè* vs. 1 sg. *mògą* (*-am*) AP *b*, 3 sg. *mòže*. In most Slovincian polysyllabic presents the 1 singular has initial accentuation while the other forms are accented on the last syllable of the stem, e.g. 1 sg. *dʉ̀o̯ńəsą*, 2 sg. *dəńi̯ęsěš* etc. Since in Slovincian the accent was retracted from a short final syllable to a preceding syllable in words with more than two syllables, this accentuation pattern is very similar to that of Old Russian and dialectal Bulgarian. Slovincian does not distinguish between originally mobile and immobile verbs, however, having generalised the accent pattern of the former. In the modern standard languages desinential accentuation has been introduced in the 1 singular, e.g. RU *nesú*, BG *donesá* etc. The unaccentedness of PS *¦*supān* was probably introduced together with the nasal from the preterite desinence PIE *-*óm* > PBS *-*an*, where it had arisen regularly by the Mobility Law.[135]

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134. Stang (1957 [1965]: 109–112), from where the Old Russian and dialectal Bulgarian forms are quoted; see also Dybo (1962b: 9–15); Gustavsson (1969: 23–43); note that Stankiewicz (1993: 3) is sceptical about the evidence for Common Slavic non-desinential accentuation in the present 1 singular.

135. For the introduction of secondary *-*m* in the Slavic present, see Kortlandt (1979b: 55–57) with the references of fn. 13; according to Kortlandt, it was the reflex of the PIE perfect 1 sg. *-h_2a that was enlarged by *-*m* in pre-Slavic.

• 2 sg. – PIE *-*ési*: VED *tudási*, GK *φέρεις*.
Slavic displays desinential accentuation of this form in accordance with the Mobility Law. As indicated by Old RU *živeší*, *čteší*,[136] the accent was on the final syllable in Proto-Slavic. For this form and for the remaining forms of the present tense, Rasmussen has suggested that the Slavic final accentuation is the result of the operation of Dybo's Law on forms accented on the first syllable of the desinence.[137] The obscure prehistory of the Baltic desinence prevents us from drawing conclusions from its accentuation; like the 1 sg. *supù* mentioned above, 2 sg. *supì* may reflect either initial or desinential accentuation.

• 3 sg. – PIE *-*éti*: VED *tudáti*, GK *φέρει*.
The primary desinence PIE *-*éti* retained the accent in Proto-Balto-Slavic **su*ˈ*peti* in accordance with the Mobility Law. In Slavic the accent was advanced to the final syllable by Dybo's Law, yielding PS **supeˈti*. For LI prs. 3 ps. *sùpa* see below in this subsection, "Preterite tense".

• 1 pl. – PIE *-*ómos*: VED *tudā́maḥ*, *-ā́masi*, GK *φέρομεν*.
Whatever the original shape of the Proto-Indo-European present 1 plural was,[138] the desinence was disyllabic and the accent remained on its first syllable in Proto-Balto-Slavic in accordance with the Mobility Law. The final accentuation of Slavic forms with a disyllabic variant of the desinence, e.g. UKR *nesemó*, ČAK *pečemȍ*, ŠTK *nesémo*, SLN *nesémo*, is the regular outcome of Dybo's Law; the forms in PS *-*mu* are ambiguous on this point. In Štokavian and Slovene we find alternative forms accented on the first syllable of the desinence, e.g. ŠTK *nèsēmo*, SLN *nésemo*. These forms are understandable as analogical to the forms which became accented on the only syllable of the desinence when the reduced vowels were lost, e.g. ŠTK 2 sg. *nèsēš*, 3 sg. *nèsē*. Lithuanian *sùpame* probably represents the accentuation of the immobile paradigm. Old Lithuanian *žinomé* may point to old desinential accentuation in the mobile paradigm, see Ch. 3 § 1.2, "Verbal accentuation".

• 2 pl. – PIE *-*éte*: VED *tudátha*, GK *φέρετε*.
The development of the accentuation of this form is parallel to that of the 1 plural. The disyllabic desinence PIE *-*éte* retained the penultimate accentuation in Proto-Balto-Slavic in accordance with the Mobility Law and later received final accentuation in Slavic by Dybo's Law, as shown by BRU *nesjacé*,

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136. Quoted from Stang (1957 [1965]: 184 n. 95).
137. Rasmussen (1992b [1999]: 478); see also Olander (2004: 412).
138. I assume a primary ending PIE *-*mos*, secondary *-*me*; cf. Stang (1942: 222–223); Aitzetmüller (1978: 178); Andersen (1998a: 445).

ŠTK *neséte*, ČAK *pečetè*, SLN *neséte*. The penultimate accentuation of RU *nesëte* and of the alternative forms ŠTK *nèsēte*, SLN *nésete* is analogical, see above on the 1 plural. Like the 1 plural, LI 2 pl. *sùpate* probably belongs to the immobile paradigm, but the original desinential accentuation may have survived in Old LI 2 pl. *žinotê* (Ch. 3 § 1.2, "Verbal accentuation").

• 3 pl. – PIE **-ónti*: VED *tudánti*, GK *φέρουσι*.
The final accentuation of the form in Proto-Slavic is shown by the fact that the accent was not retracted to the initial syllable by Stang's Law in PS **pekan˥ti* > RU *pekút*, ČAK *pekú* etc.; cf. PS **ma˥ganti* AP *b* > RU *mógut*, ČAK *mȍrū*. The final accentuation arose by Dybo's Law from PBS **su˥panti* with accent on the first syllable of the desinence in accordance with the Mobility Law. In Baltic the 3 plural was replaced by the 3 singular.

Preterite tense

Table 32. Development of the accentuation of the preterite tense

	PIE		PBS		LI		PS	CS
2 sg.	**supés*	>	**˩supes*		–	>	**˩supe*	**sъ̑pe*
3 sg.	**supét*	>	**˩supe*	>	*?sùpa*	>	**˩supe*	**sъ̑pe*

The only forms of the mobile preterite paradigm that can be reconstructed in Proto-Balto-Slavic are the 2 and 3 singular of the thematic imperfect or aorist. Formally these forms reflect present or aorist injunctives, i.e. unaugmented forms with secondary desinences.

• 2 sg. – PIE **-és*: VED *rujáḥ*, GK Hom. *φέρες*.
The form became unaccented in Proto-Balto-Slavic by the Mobility Law. This accentuation was preserved in Slavic, as shown by ŠTK aor. *plète*, *zàplete*. In Lithuanian the form has disappeared.

• 3 sg. – PIE **-ét*: VED *ruját*, GK Hom. *φέρε*.
The preterital 3 singular form regularly became unaccented in Proto-Balto-Slavic by the Mobility Law and retained this accentuation in Slavic, as shown by ŠTK aor. *plète*, *zàplete*. The desinence of LI prs. 3 ps. *sùpa* reflects the preterital desinence with an analogically introduced *-a-* from other forms of the paradigm.[139] The accentuation of *sùpa* probably represents the phonetic merger of the 3 singular forms of the originally immobile and mobile paradigms.

139. Endzelīns (1971a: 203–204); Stang (1942: 230; 1966a: 410).

Optative

Table 33. Development of the accentuation of the optative mood

	PIE		PBS		LI		PS	CS
2 sg.	**supói̯h₁s*	>	**su⸌paiˌ̯s*		–	>	**su⸌paiˌ̯*	**sъpì*
3 sg.	**supói̯h₁t*	>	**su⸌paiˌ̯*	>	*tesupiẽ*	>	**su⸌paiˌ̯*	**sъpì*
1 pl.	**supói̯h₁me*		**su⸌pāˀiˌ̯me*		–	>	**su⸌pāi̯me*	**sъpĕ̋me*
2 pl.	**supói̯h₁te*	>	**su⸌pāˀiˌ̯te*		–	>	**su⸌pāi̯te*	**sъpĕ̋te*

The Proto-Indo-European optative forms have survived in East Baltic as permissive forms and in Old Prussian and Slavic as imperatives. In Lithuanian only the 3 singular form has survived, while in Slavic we have accentual information on the 2 and 3 singular and 1 and 2 plural. The suffix PIE **-o-i̯h₁-* consisted of the thematic vowel **-o-* and the optative marker **-ih₁-*.[140]

The Proto-Indo-European desinences 2 sg. **-oi̯h₁s*, 3 sg. **-oi̯h₁t* yielded pre-PBS **-āˀiˌ̯s*, **-āˀiˌ̯t*. I assume (although I acknowledge the *ad hoc* character of the development) that after the operation of the Mobility Law, acute long vowels were shortened in final syllables if followed by semivowel plus consonant, i.e. pre-PBS **-āˀiˌ̯s*, **-āˀiˌ̯t* > **-ai̯s*, **-ai̯t*, yielding PBS **-ai̯s*, **-aiˌ̯*.[141]

- 2 sg. – PIE **-ói̯h₁s*: VED *tudéḥ*, GK *φέροις*.

The pre-Proto-Balto-Slavic long desinence **-⸌āˀiˌ̯s* regularly retained the accent by the Mobility Law, yielding PBS **su⸌pai̯s* > PS **su⸌paiˌ̯*.

- 3 sg. – PIE **-ói̯h₁t*: VED *tudét*, GK *φέροι*.

Pre-PBS **-⸌āˀiˌ̯t* regularly remained accented by the Mobility Law, yielding PBS **su⸌paiˌ̯* > LI *tesupiẽ*, PS **su⸌paiˌ̯*.

- 1 pl. – PIE **-ói̯h₁me*: VED *tudéma*, GK *φέροιμεν*.

The position of the accent on the first syllable of the desinence was regularly retained in PBS **su⸌pāˀiˌ̯me*. Since the accented syllable was acute, it was not affected by Dybo's Law, as shown by PS **su⸌pāi̯me*.

- 2 pl. – PIE **-ói̯h₁te*: VED *tudéta*, GK *φέροιτε*.

The accent remained as expected on the first syllable of the desinence, which was acute, in PBS **su⸌pāˀiˌ̯te* > PS **su⸌pāi̯te*. The Proto-Slavic acute tone and the position of the accent are unambiguously shown by ČAK *pecĭte*.[142]

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140. A laryngeal was consonantal between **i̯* and a following consonant, see Rasmussen (1989a: 224–225); cf. Mayrhofer (1986: 131 with fn. 140).
141. Cf. Hollifield (1980: 27). For the relationship between PS **-aiˌ̯* and CS **-i* in the optative 2 and 3 singular see Ch. 2 § 4.2, "Laryngealistic view".
142. Stang (1957 [1965]: 137); Sadnik (1959: 126) considers the acute secondary.

Chapter 5
Conclusion

In the preceding pages I have tried to elucidate the prehistory of the Balto-Slavic mobile accent paradigms. I shall briefly summarise the results and present the most important conclusions.

Chapter 1

In the introductory Chapter 1, the problem was presented and an overview of various approaches to it was offered. A separate section was devoted to criticism of the two most important hypotheses on the prehistory of the Balto-Slavic paradigmatic mobility, viz. the hypothesis that the mobility is inherited from Proto-Indo-European in most or all stems, and the hypothesis that the mobility of vowel stems has arisen through a systematic imitation of the inherited mobility of consonant stems. An alternative approach to the problem was suggested according to which the mobility arose when word-forms accented on a final mora became unaccented.

Chapter 2

In Chapter 2 a reconstruction of various parts of the Indo-European proto-language was endeavoured, with special attention to the structure of final syllables and the paradigmatic accent. In an effort to avoid interference from the hypothesis advocated here for Balto-Slavic, the chapter was based only on non-Balto-Slavic evidence, i.e. on Indo-Iranian, Greek, Germanic and internal reconstruction of the proto-language. The free accent of Proto-Indo-European is directly preserved in Vedic and, with certain restrictions, in Greek; in Germanic the effects of Verner's Law offers information on the original position of the accent.

In the proto-language four types of long structures (possibly followed by one or more non-laryngeal consonants) should be distinguished in final syllables:

1 Plain long vowel, $*\bar{V}$.
2 Vowel followed by a tautosyllabic laryngeal, $*V(\underline{i})h$.
3 Two vowels in hiatus with no intervening laryngeal, $*VV$.
4 Two vowels separated by a laryngeal, $*VhV$.

In the Indo-Iranian metres, (1) and (2) regularly count as one long syllable, whereas (4) sometimes requires disyllabic scansion; it is uncertain whether (3) joins the former or the latter type. In Greek, the reflexes of (1) and (2) have acute tone if accented, while the reflexes of (3) and (4) have circumflex tone. According to one hypothesis, the Germanic auslautgesetze also distinguish (1) and (2) from (3) and (4), but it is unclear whether the distinction is preserved before final *-*s*. The proponents of an alternative hypothesis maintain that the distinction between (1), (2), (3) and (4) has disappeared in Germanic, the auslautgesetze being determined by the absence or presence of a final obstruent. Since neither of the hypotheses could be rejected, Germanic evidence cannot be relied upon in the reconstruction of the structure of Proto-Indo-European final syllables.

The paradigmatic accentuation system of Proto-Indo-European is reconstructed mainly on the basis of Vedic and Greek, our only direct evidence of the system. These languages agree in showing no paradigmatic mobility in *o*-, *ā*-, *i*- and *u*-stems, which all have columnar accentuation. In Greek we find mobility in a few *ī*-stems. The Vedic and Greek polysyllabic consonant stems generally have columnar accentuation apart from a few mobile stems in Vedic. Monosyllabic consonant stems are usually mobile in Vedic and Greek; in the proto-language, the mobile monosyllabic consonant stems were root-accented in the nominative and accusative of all numbers, the other cases having desinential accentuation.

In Germanic the Verner doublets found in both vowel stems and consonant stems would be easily explained as reflecting a system with paradigmatic mobility in all stems. As stated above, however, in Vedic and Greek there are no indications of mobility in the *o*-, *ā*-, *i*- and *u*-stems. The absence of ablaut alternations in the *o*- and *ā*-stem suffixes supports the reconstruction of Proto-Indo-European immobility in these stems, while in the *i*- and *u*-stems internal reconstruction points to earlier mobility. I suggest that we attach more importance to the direct evidence of Vedic and Greek and do not reconstruct paradigmatic accent mobility neither in *o*- or *ā*-stems, nor in *i*- or *u*-stems in Proto-Indo-European. The mobility indicated by the suffixes of the *i*- and *u*-stems had disappeared at a pre-stage of Proto-Indo-European. Neuter *o*-stems may have shown accent and ablaut alternations between the singular and plural in the proto-language; while the alternations have been eliminated in Vedic and Greek, the Germanic Verner doublets in this case may reflect the original accent alternations.

Chapter 3

Chapter 3 was devoted to a reconstruction of the Proto-Balto-Slavic prosodic system and the system of paradigmatic mobility on the basis of Lithuanian, Latvian, Old Prussian and the reconstructed Proto-Slavic. In all Baltic languages, traces were found of the class of unaccented word-forms attested in Slavic; this class should thus be traced back to Proto-Balto-Slavic. The Balto-Slavic proto-language was characterised by a free accent, a distinction between long and short vowels, and possibly a distinction between glottalised (acute) and non-glottalised (circumflex) long vowels. An examination of Saussure's Law and Leskien's Law in the section on Lithuanian confirmed the traditional assumption of two prosodically distinct long syllables in final position in Proto-Balto-Slavic. These two prosodic laws of Lithuanian were triggered by vowels originally followed by a tautosyllabic laryngeal. In the section on Proto-Slavic, Dybo's Law was analysed in some detail. It was pointed out that the accent advancement operated on any accented syllable containing a non-acute vowel, not only on the initial syllable of words with immobile accentuation as is sometimes maintained.

The Baltic and Slavic languages suggest a reconstruction of two accent paradigms for each stem-class, an immobile and a mobile one. When Saussure's Law operated, the immobile paradigms split into AP 1 and 2 in Lithuanian, while in Slavic they split into AP *a* and *b* as an effect of Dybo's Law. The mobile paradigms split into AP 3 and 4 in Lithuanian, while in Slavic they are reflected as AP *c*.

At the end of the chapter, three pre-Proto-Balto-Slavic prosodic developments were briefly mentioned, namely Hirt's Law, Winter's Law and the loss of laryngeals with compensatory lengthening. Although neither of these laws had direct influence on the paradigmatic accent mobility, Hirt's Law was important since it caused a redistribution of words among the accent paradigms. Winter's Law and the loss of laryngeals led to an increased number of words with a long acute root-vowel.

Chapter 4

Chapter 4 consisted in an examination of the accent law announced in the introductory part of the study, the Mobility Law. According to this phonetic law, which operated in the desinentially accented paradigms at a pre-stage of Proto-Balto-Slavic after the loss of intervocalic laryngeals, words accented on a final short or hiatal structure became unaccented. If we assume that Proto-Indo-European accented plain long vowels and vowels followed by

a syllable-final laryngeal had high pitch on the first mora, and that accented vowels in hiatus and short vowels had high pitch on the second or only mora, the Mobility Law may be formulated more precisely as a change of high pitch to low in final position in the phonological word. The accent curves of the Baltic and Slavic mobile paradigms are the result of the different structure of the desinences. The circumstance that the Mobility Law affected the phonological word explains certain accentual phenomena in Baltic and Slavic that involve clitics, including Vasil'ev–Dolobko's Law and Šaxmatov's Law in Slavic.

The examination was based on the analysis of the structure of Proto-Indo-European final syllables made in Ch. 2 and the reconstruction of the accent curves of the Proto-Balto-Slavic mobile accent paradigms as established in Ch. 3. The structure of the relevant desinences of the various Proto-Indo-European nominal and verbal paradigms was compared with the accentuation of the corresponding Proto-Balto-Slavic forms with reference to the proposed Mobility Law.

One of the more general conclusions that may be drawn from the analyses made in Chapter 4 is that the development of the Balto-Slavic paradigmatic accent mobility does not presuppose an existing accentual mobility of any kind in Proto-Indo-European. The Proto-Balto-Slavic mobile accent paradigms are derivable via the Mobility Law from paradigms with columnar accentuation on the first syllable of the desinence, i.e. from a system identical to those attested in Vedic and Greek. Importantly, Balto-Slavic does not provide evidence in favour of the assumption of accentual mobility in the Proto-Indo-European *i*- and *u*-stems, which renders it probable that the original accentual mobility of these stems had been discarded already at the last stage of the proto-language. Likewise, the accentuation of neuter *o*-stems like RU nom.-acc. sg. *póle* vs. pl. *poljá* is understandable as the regular reflex of a Proto-Indo-European desinentially accented paradigm and does not support the assumption of paradigmatic mobility in this type in the proto-language.

General conclusion

It may be objected to the hypothesis I have advanced in this book that it does not explain all the material as phonetically regular and that it requires a certain amount of analogical levelling in order to account for the facts. One should keep in mind, however, that according to the most popular alternative view, the mobile accentuation of the vowel stems as such is analogical.

Among the individual forms that do not find a completely satisfactory explanation within the framework presented here is the genitive plural of

the *o*- and *ā*-stems, which had desinential accentuation in Proto-Balto-Slavic despite the fact that the desinence was hiatal in Proto-Indo-European. Likewise, the circumflex tone of the Lithuanian and Greek *ā*-stem genitive singular apparently contradicts the reconstruction of a desinence without hiatus required by the Mobility Law. The unaccented nominative-accusative dual forms of the *o*-, *i*- and *u*-stems also do not correspond to the predictions of the Mobility Law.

While I have tried to offer explanations of the unexpected accentuation of these and other forms, I admit that they constitute counterevidence to the hypothesis presented here. On the other hand, as I stated in my criticism of the existing hypotheses on the origin of the Balto-Slavic paradigmatic accent mobility, they have serious fundamental shortcomings. In the hope of having argued convincingly in favour of the view that it is more attractive to seek the origin of the Balto-Slavic accentual mobility in a phonetic development than in an archaism inherited from the proto-language or in a series of analogical changes, I have proposed my own attempt at a formulation of an accent law which explains most of the material. It is evident that future research may lead to improvements of both the Proto-Indo-European and the Proto-Balto-Slavic reconstructions and of the developments that initiated the mobility and shaped the Balto-Slavic mobile accent paradigms.

Postscript

Some preliminary results of my examination of the Baltic and Slavic paradigmatic accent mobility were published in July 2005 in the paper "The Balto-Slavic mobile accent paradigms", presented at the First International Workshop on Balto-Slavic Accentology (IWOBA I) in Zagreb.[1] A year later, in May 2006, I defended the Ph.D. dissertation on which this book is based at the University of Copenhagen. Both the Zagreb paper and the dissertation have stimulated some discussion.

The first reaction in print to my hypothesis that the Balto-Slavic mobile accent paradigms have arisen as a result of a regular phonetic development is Kortlandt's "Miscellaneous remarks on Balto-Slavic accentology", written in 2005 and made accessible at www.kortlandt.nl in 2006.[2] In a subsequent paper entitled "Balto-Slavic accentual mobility", presented at the Second International Workshop on Balto-Slavic Accentology (IWOBA II) in Copenhagen in 2006 and published in *Baltistica* the same year, Kortlandt gives a more detailed criticism of the views on the origin and development of the Balto-Slavic accentual system presented in my dissertation. Finally, in the article "Accent retraction and tonogenesis" (made accessible at www.kortlandt.nl in 2006), Kortlandt in a reaction to my criticism of his accentology modifies the Proto-Indo-European accentuation system he takes as his point of departure for the development of the Balto-Slavic mobile accent paradigms.

In a paper presented in Copenhagen in 2007, Andersen advanced the idea that the accent loss that gave rise to the accentual mobility in Baltic and Slavic was induced by contact with neighbouring languages. In a forthcoming article the author further elaborates on this idea and presents an alternative hypothesis of an accent loss in pre-Baltic and pre-Slavic. Andersen's contributions to the discussion of the origin of paradigmatic accent mobility in Baltic and Slavic are discussed in detail in Ch. 4 § 2 of this book. In the following pages I shall reply to Kortlandt's criticism of my dissertation and examine his revised account of the development of the Balto-Slavic accentual mobility.

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1. The paper has been published as Olander (2007b).
2. Published as Kortlandt (2007).

Kortlandt's criticism

In his confrontation of my examination of the Balto-Slavic accentuation system with his own interpretation of the problems, Kortlandt, demonstrating his typical acuteness and impressive ability to survey complicated systems, draws attention to important issues that need clarification. In this reply to Kortlandt's comments I shall concentrate on what Kortlandt considers to be internal weaknesses in my theory, as opposed to cases where he objects to my views because they are not in accordance with his own framework. An example of the latter type of criticism is when Kortlandt claims that my interpretation of Meillet's Law "cannot be correct because the prosodic merger of acute and circumflex in Slavic was limited to pretonic and post-posttonic syllables",[3] or when he maintains that certain analyses of mine "cannot be correct because Dybo's law did not shift the accent to final jers".[4] The objections raised by Kortlandt in cases like these are only valid from the point of view of his own theory and my standpoints are, as far as I can see, not contradicted by other parts of my theory. Such criticism is interesting insofar as it illustrates differences between our theories, but it does not bring to light weaknesses in my theory that need to be dealt with.

The most important part of Kortlandt's criticism concerns the accent law I propose to explain the origin of the Balto-Slavic mobile accent paradigms. Kortlandt objects to both the typological probability of the accent law itself and its being in agreement with the Baltic and Slavic material.

As for the former perspective, I agree that a phonetic development for which typological parallels are known is, *ceteris paribus*, more plausible than a similar development for which there are no known (and undisputed) parallels; but the lack of such typological evidence is, in my opinion, not enough to discard a given development.[5] Whatever one's theoretical position is on this question, however, the point is not of relevance here. Kortlandt claims that he does "not know any example of phonological loss of a high tone on the basis of its position in a word form".[6] But as Andersen has now shown, this very development has unmistakably taken place both in the Podravina dialects of Štokavian and in the Zaonež'e dialects of Russian; see the discussion in Ch. 4 §2 of this book. This is an instructive example of

3. Kortlandt (2006a: 364).
4. Kortlandt (2006a: 366, 367), referring to Kortlandt (1975: 15).
5. This also seems to be the view expressed in Kortlandt (1995).
6. Kortlandt (2006a: 365).

the fact that we should be careful before we dismiss linguistic hypotheses because we are not aware of typological parallels.

As for the latter perspective, an examination of Kortlandt's critical comparison of the expected results of the Mobility Law with the specific Baltic and Slavic forms that constitute the mobile accent paradigms[7] reveals that the forms referred to as "unexplained" by Kortlandt have already been presented and interpreted on the background of my framework in the part of my dissertation that deals with the Mobility Law (of which Ch. 4 of this book is an extended and elaborated version). I shall therefore concentrate on issues in Kortlandt's *Baltistica* article (2006a) that are more indirectly related to the problem of the Balto-Slavic paradigmatic accent mobility.

In my dissertation I accepted the traditional view that Proto-Indo-European plain long vowels become acute in Balto-Slavic[8] – my "biggest mistake", as Kortlandt puts it in his characteristic polemical style.[9] I have now modified my view on this problem, deciding to leave the question open (see Ch. 3 § 5.1). It should be note in this connection, however, that the problem of the reflexes of plain long vowels in Balto-Slavic is of little relevance to the question of the prehistory of the Balto-Slavic mobile accent paradigms. It does not have any influence on my hypothesis of a phonetic accent loss in syllables of a certain structure in pre-Proto-Balto-Slavic.

In contrast to Kortlandt, I assume that after Dybo's Law there were only two phonologically relevant prosodic distinctions in Proto-Slavic, accent and quantity. Kortlandt represents his evidence in favour of a distinction between acute, long and short vowels by the following types:[10]

Table 34. Prosodic correspondences in Slavic

		1	2		3	
	PS	ŠTK	SLK	PO	CZ	US
a	acute	*krȁvu*	*kravu*	*krowę*	*krávu*	*kruwu*
b	long	*brázdu*	*brázdu*	*bruzdę*	*brázdu*	*brózdu*
c	short	*brâdu*	*bradu*	*brodę*	*bradu*	*brodu*

7. Kortlandt (2006a: 366–368; 2007).
8. Olander (2006: 100, 126).
9. Kortlandt (2006a: 364).
10. Kortlandt (2006a: 361); while Kortlandt uses the nominative singular of the words, I prefer the accusative singular since this form represents the original prosodic distinctions better.

This gives the following correspondences as represented by the three groups (1) Štokavian vs. (2) Slovak and Polish vs. (3) Czech and Upper Sorbian:

a short in groups (1) and (2) vs. long in group (3)
b long in all groups
c long in group (1) vs. short in groups (2) and (3)

"It is clear", Kortlandt maintains, "that we have a distinction between acute (a), long (b) and short (c) vowels here". At first glance this assertion may seem to be true: in a prosodic system that only comprises long vs. short vowels, we would not be able to obtain the three types in the Slavic languages. What Kortlandt does not take into account in his interpretation of the Slavic reflexes is the role played by the position of the accent.

In type (a) above, the accent was always on the first syllable of the word in Proto-Slavic, i.e. nom. sg. *ˈ*kārų̄*, acc. sg. *ˈ*kārų̄n*, etc., while in type (b) it was always on the second syllable of the word, i.e. nom. sg. **barzˈdā*, acc. sg. **barzˈdān*, etc. The word-forms constituting type (c) were characterised by an alternation of forms accented on the desinence, i.e. nom. sg. **barˈdā*, and unaccented forms, i.e. acc. sg. *ˌ*bardān*. To illustrate my interpretation of the three types of correspondences, I shall refer to the Proto-Slavic accusative singular of the words, i.e. (a) *ˈ*kārų̄n*, (b) **barzˈdān*, (c) *ˌ*bardān*. The initial syllables of the three types have the following characteristics:

a long accented
b (long or short) pretonic
c (long or short) unaccented, not pretonic

Thus when we pay attention to the position of the accent in Proto-Slavic, the three types of correspondences shown by the Slavic languages are derivable from an original prosodic system comprising accent and quantity only.[11] When we take the whole word into account and do not only look at individual syllables, there is no need for the distinction "acute vs. long vowels" assumed by Kortlandt.[12]

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11. See also the similar account of the facts in Andersen's treatment of the Common Slavic vowel shifts (1998b).
12. Obviously, we do not avoid the assumption of some subsequent analogical levelling in the Slavic languages. In the West Slavic reflexes of AP c, for instance, we expect finally accented forms to appear with a long root vowel, while enclinomena should appear with a short one. What we find is that in most cases the short root vowel has been generalised throughout the paradigm.

The same goes for the Ukrainian forms nom. sg. *moróz* vs. gen. pl. *holív* vs. acc. sg. *hólovu*, which Kortlandt adduces as further examples of a distinction between acute and long syllables in Proto-Slavic. When the position of the accent is taken into account, we have at our disposal the necessary number of distinctions to account for the three different reflexes. The Ukrainian word-forms reflect PS *ˈ*mārzu*, **gālˈu̯u* and *ˌ*gālu̯ān* respectively.[13]

In the preceding paragraphs I have tried to make plausible that the evidence from the attested Slavic languages does not imply that there was a phonologically relevant distinction between two types of long vowels in the Slavic proto-language.

Kortlandt adduces the Slovak pair *mohol* vs. *niesol* in favour of his view that there was an accentual difference between *l*-participles of AP *b* and *c*, claiming that the former word-form reflects **mòglъ* with initial accent, the latter **neslъ̀* with final accent.[14] This, together with Kortlandt's assumption that Dybo's Law did not advance the accent to final reduced vowels, would ultimately support his idea of a pre-Proto-Balto-Slavic accent retraction "from final open syllables of disyllabic word forms unless the preceding syllable was closed by an obstruent".[15] A look at more than individual forms of the system reveals that a source of the short root vowel of *mohol* is readily available, namely the remaining forms of the *l*-participle: fem. *mohla,* neut. *mohlo,* pl. *mohli*. In the paradigm of *niesol*, the long root vowel has been generalised from the masculine form: fem. *niesla*, neut. *nieslo,* pl. *niesli*. The original distribution of short and long vowels is preserved in Central Slovak dialects where we find *mu̯ohou̯*, *mohla*, *mohlo*, *mohľi*, and *ňi̯esou̯*, *ňesla* etc.[16] In standard Slovak the short root vowel has been generalised in monosyllabic stems containing *o*, thus not only *mohol* (originally AP *b*), but also *bodol* (originally AP *c*). Stems with *e*, on the other hand, have a long root vowel in the *l*-participle, thus not only *niesol* (originally AP *c*), but also *liezol* (originally AP *a*). As shown by the examples, the original accent paradigm does not play a role in the distribution of long and short root vowels in the *l*-participle in standard Slovak. The pair *mohol* vs. *niesol* lends no support to Kortlandt's accent retraction.

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13. For a thorough interpretation of the Ukrainian reflexes I refer to Andersen (1998b: 242–243).
14. Kortlandt (forthc. [2006]); see also (2006a: 368); I am grateful to Mate Kapović for his inputs on this issue.
15. E.g. Kortlandt (2008: 7).
16. Stanislav (1967: 377, 408).

Criticism of Kortlandt's modified system

In his production up to 2006,[17] Kortlandt maintained that the Proto-Indo-European starting point of the Balto-Slavic accentual mobility was characterised by a "[l]oss of PIE accentual mobility, of which there is no trace outside the nominal flexion of the consonant stems".[18] In his recent article "Accent retraction and tonogenesis" (forthc. [2006]), Kortlandt formulates an alternative view on the Proto-Indo-European accent paradigms. Assuming that not only consonant stems, but also *ā*-, *i*- and *u*-stems were accentually mobile in Proto-Indo-European,[19] Kortlandt now suggests an interpretation of Pedersen's Law as a purely phonetic development without morphological limitations. The new starting point also allows Kortlandt to avoid the Oxytonesis (at least in the nominal inflexion), an accent advancement in paradigms that include forms with desinential accentuation.

Kortlandt's revised explanation of the origin and development of the Balto-Slavic mobile accent paradigms, which aims at satisfying his "neogrammarian colleagues",[20] certainly represents an improvement of his theory. Eliminating such unattractive solutions as the Oxytonesis (in the nominal inflexion) and the conception of Pedersen's Law as an analogical development,[21] Kortlandt moves his framework further away from its original starting point, his teacher Ebeling's chronology of Slavic accentual developments (1967). Despite the recent adjustments of his theory, however, many of Kortlandt's solutions remain difficult to accept. I shall recapitulate here what I consider to be the weakest points of Kortlandt's account of the history of the Baltic and Slavic accentuation systems.

Consider these two developments that make up a permanent ingredient in Kortlandt's theory of the prehistory of the Slavic accentuation system:[22]

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17. An overview of Kortlandt's most relevant publications for the subjects treated here is found in his *Baltistica* article (2006a).
18. Kortlandt (2006a: 359).
19. "I think that accentual mobility was widespread in Proto-Indo-European outside the *o*-stems and the thematic present and that it was largely eliminated in the daughter languages" (Kortlandt 2006a: 362).
20. Kortlandt (forthc. [2006]).
21. In an email on this question (2008), Kortlandt expresses doubts as to whether the dichotomy between sound law and analogy is relevant in this case.
22. The developments are quoted from Kortlandt (2006b: 27).

1 "6.10. Pedersen's law":[23] "The stress was retracted from inner syllables in accentually mobile paradigms […]. The stress was also retracted within the initial syllable of barytone forms in paradigms with mobile stress, yielding a falling tone. All other stressed vowels became rising by opposition."
2 "7.2. Dolobko's law. Barytone forms of accentually mobile paradigms lost the stress to an enclitic particle".

As I have tried to explain in Ch. 1 § 5 of this book, I find the existence of such "analogical laws" questionable. Analogical developments do not follow mechanical laws. They take place if they make sense in a given linguistic context, i.e. if there is some motivation for the language users to introduce the change.[24] If we take the second part of the Slavic Pedersen's Law as presented by Kortlandt, it is difficult to see the motivation behind it. Why would a language user be motivated to retract the accent within the first syllable (even if it was short) of a word-form that alternated with forms with final accent, thus introducing something as drastic as distinctive syllabic tones in the language? In my view, this type of "analogical laws" is often rather a description of a synchronic mechanism, which should not be confused with a diachronic explanation.[25] As for the pre-Proto-Balto-Slavic Pedersen's Law, the difficulties in assuming a phonetically conditioned accent retraction from medial syllables at this stage have already been pointed out by Stang.[26]

On a more formal level I should like to point out what I see as a problematic formulation in Kortlandt's framework. The assumption of a larger amount of original accentual mobility in the Balto-Slavic mobile accent paradigms allows Kortlandt to avoid several cases of Barytonesis (stage 3.3 in Kortlandt's chronology), i.e. the process by which "the retraction of the stress [as in LI acc. sg. *dùkterį*] spread analogically to vocalic stems in the case forms where Pedersen's law applied".[27] Still, cases explained by Barytonesis remain in Kortlandt's theory, e.g. LI acc. sg. *diẽvą* (cf. VED *devám*).

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23. Not to be confused with the pre-Proto-Balto-Slavic law carrying the same name, which Kortlandt now proposes to formulate as a phonetic development (forthc. [2006]), see above.
24. Cf. Kortlandt (1979c: 259–260 fn. 3): "an explanation involving analogical change requires not only the indication of a model, but also the presence of a plausible motivation".
25. I am grateful to Benedicte Nielsen for discussing this question with me.
26. Stang (1957 [1965]): 11–13; cf. the analyses in Kortlandt (forthc. [2006]) of the forms mentioned by Stang.
27. Kortlandt (2006a: 359).

While it is absolutely natural that case forms of one paradigm are influenced by those of another, it must be emphasised that such analogical developments do not constitute a unitary process. Each form affected by the Barytonesis in Kortlandt's theory constitutes a separate analogical development and should be described and evaluated as such.

The view that the Balto-Slavic accentual mobility is to a great extent directly inherited from the Indo-European proto-language brings Kortlandt's theory closer to the theories subscribed to by Meillet at the beginning of the twentieth century and by Stang fifty years later. Kortlandt's theory thereby lays itself open to the same criticism as these theories, see Ch. 1 § 5 of this book. According to this theory, since the inherited accentual mobility in vowel stems would continue and flourish in Balto-Slavic, it must have been alive and well at the last stages of Proto-Indo-European. It is surprising, then, that there are no traces of it in conservative languages like Vedic and Greek.

As a final remark I should like to address a debatable aspect of Kortlandt's methodological approach. At the reconstructed synchronic stages of development of the languages in question Kortlandt assumes rather large and complex phonological and prosodic systems together with morphological systems containing a high number of alternations. As an illustration, Kortlandt assumes that at a pre-stage of Proto-Slavic, "case endings could have three different quantities. For example, the nom. sg. ending of the *a*-stems was short in *žèna* 'woman', long in *wòļā* 'will' and *òsnowā* 'base', and indifferent with respect to length in *gorå* 'mountain' ".[28] This variety of allomorphs offered in Kortlandt's theory enables him to explain virtually any form that appears in the Slavic languages. Similarly, when Kortlandt announces an impressive number of 69 potentially distinctive vowels in Late Proto-Slavic,[29] warning bells should go off. Moreover, the linguistic developments which Kortlandt operates with to get from one language stage to the next are both numerous and, in many cases, quite specific.

This methodological approach provides Kortlandt with a theory that is able to explain almost any actually occurring word-form, either as a regular phonetic reflex or as the result of influence from alternating forms; but the risk of overfitting is high. While we do have some fixed points in our modelling of the origin and development of the Baltic and Slavic accentual systems, these points are so few that an overly specific approach like Kortlandt's is, in my opinion, inappropriate.

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28. Kortlandt (2006b: 29).
29. Kortlandt (2006b: 39).

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Prosodic laws of Balto-Slavic

Only laws that are generally referred to in the literature are included.

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Slavic prosodic reflexes

Typical correspondences in Common Slavic disyllabic word-forms.

1. Common Slavic long acute syllable
CS nom. sg. **bā́ba* ‘grandmother’; nom. sg. **gőrxъ* ‘pea, peas’

PS	CS	ŠTK	ČAK	SLN	RU	CZ	SLK	US	PO	SLNC
**ˈbābā*	**bā́ba*	*bȁba*	*bȁba*	*bába*	*bába*	*bába*	*baba*	*baba*	*baba*	*bãbă*
**ˈgārxu*	**gőrxъ*	*grȁh*	*grȁh*	*grȁh*	*goróx*	*hrách*	*hrach*	*hróch*[a]	*hroch*	*grȕo̯χ*

a. Old US; modern US *hroch*.

2. Common Slavic long neoacute syllable
CS nom. sg. **xvórstъ* ‘brushwood’ (nom. sg. **kórl’ъ* ‘king’)

PS	CS	ŠTK	ČAK	SLN	RU	CZ	SLK	US	PO	SLNC
**xu̯arsˈtu*	**xvórstъ*	*hrâst*	*hrást*	*hrást*	*xvórost*	*chrást*[a]	*kráľ*[b]	*chróst*	*chrust*	*χrőu̯st*

a. Dial. CZ; standard CZ *chrast*. b. The short vowel of SLK *chrasť* is secondary.

3. Common Slavic short neoacute syllable
CS nom. sg. **snòpъ* ‘sheaf’

PS	CS	ŠTK	ČAK	SLN	RU	CZ	SLK	US	PO	SLNC
**snaˈpu*	**snòpъ*	*snȍp*	*snȍp*	*snòp*	*snóp*	*snop*	*snop*	*snóp*[a]	*snop*	*snȕo̯p*

a. Old US; modern US *snop*.

4. Common Slavic long “circumflex” syllable
CS acc. sg. **gôlvǫ* ‘head’; nom. sg. **kvâsъ* ‘leaven’

PS	CS	ŠTK	ČAK	SLN	RU	CZ	SLK	US	PO	SLNC
**ˌgālu̯ān*	**gôlvǫ*	*glâvu*	*glâvu*	*glavô*	*gólovu*	*hlavu*	*hlavu*	*hłowu*	*głowę*	*glȕo̯vą*
**ˌku̯āsu*	**kvâsъ*	*kvâs*	*kvâs*	*kvâs*	*kvás*	*kvas*	*kvas*	*kwas*	*kwas*	*kvãs*

5. Common Slavic short “circumflex” syllable
CS nom.-acc. sg. **ȍko* ‘eye’; nom. sg. **nȍsъ* ‘nose’

PS	CS	ŠTK	ČAK	SLN	RU	CZ	SLK	US	PO	SLNC
**ˌaka*	**ȍko*	*ȍko*	*ȍko*	*okǫ̑*	*óko*[a]	*oko*	*oko*	*woko*	*oko*	*vȕo̯kə*
**ˌnasu*	**nȍsъ*	*nôs*	*nôs*	*nǫ̑s*	*nós*	*nos*	*nos*	*nós*	*nos*	*nȕo̯s*

a. Archaic RU.

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"Pre-forms", i.e. word-forms not belonging to a specific reconstructed or attested language stage, are not included in the index.
Reconstructed forms include transposits.

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1. Proto-Indo-European

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2. Balto-Slavic

2.1. Proto-Balto-Slavic

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2.3.1. Proto-Slavic

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2.3.2. Common Slavic

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**vestì* vb. AP *c* ‘lead’: prs. 1 sg. **vězǫ* 150
**volkà* f. AP *b* ‘part of *a* field’: acc. sg. **volkǫ̀* 148, 149
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2.3.3. Old Church Slavonic

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nesti vb. ‘carry’: ipv. 2 sg. *nesi* 90; ipv. 3 sg. *nesi* 90; aor. 1 sg. *nĕsъ* 138
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2.3.4. Bulgarian

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2.3.5. Štokavian

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2.3.6. Čakavian

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2.3.8. Slovene

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2.3.10. Belorussian

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2.3.11. Ukrainian
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2.3.13. Slovak
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2.3.15. Polish
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3. Indo-Iranian

3.1. Proto-Indo-Iranian
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3.3. Avestan

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haša m. ‘friend’: gen. pl. *hašąm* YAV 186
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mərəta- adj. ‘dead’ OAV YAV 56
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pasu- m. ‘cattle’: gen. pl. *pasuuąm* OAV 58, 186
pərᵊsa- vb. ‘ask’: prs. 1 sg. *pərᵊsā* OAV 195
poᵘru- adj. ‘much’: gen. pl. *poᵘrunąm* YAV 58
vāta- m. ‘wind’ OAV 56
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4. Greek

4.1. Proto-Greek

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**ˈhrins* f. ‘nose’: nom. sg. **ˈhrins* 69
**ˈklōps* m. ‘thief’: nom. sg. **ˈklōps* 69
**ˈmūs* m. ‘mouse’: nom. sg. **ˈmūs* 69; acc. sg. **ˈmūn* 69
**ˈpʰōts* m. ‘man’: nom. sg. **ˈpʰōts* 69
**ˈskōr* n. ‘dung’: nom.-acc. sg. **ˈskōr* 69
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4.2. Greek

ἀγρός m. ‘field’: paradigm 70; nom. sg. *ἀγρός* 94, 166; acc. sg. *ἀγρόν* 169; dat. sg. *ἀγρῷ* 65, 66, 71, 89, 173; nom.-acc. du. *ἀγρώ* 67, 179; nom. pl. *ἀγροί* 64, 65, 67, 87, 90, 181; acc. pl. *ἀγρούς* 66, 156, 183; gen. pl. *ἀγρῶν* 67, 186; dat. pl. *ἀγροῖς* 190, *ἀγροῖσι* Hom. 192
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εἶπον vb. ‘speak’: aor. opt. 3 sg. *εἴπαι* 62; aor. inf. *εἶπαι* 62
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ῥῖ́ς f. ‘nose’: nom. sg. *ῥῖ́ς* 69
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σκῶρ n. ‘dung’: nom.-acc. sg. *σκῶρ* 69
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τρεῖς num. ‘three’: nom. pl. *τρεῖς* 182; gen. pl. *τριῶν* 186; dat. pl. *τρισί* 193
τρόχος m. ‘circular race’: nom. sg. *τρόχος* 62
τροχός m. ‘wheel’: nom. sg. *τροχός* 62
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φημί vb. ‘say’: prs. 1 sg. *φημί* 73
φιλέω vb. ‘teach’: prs. middle 1 sg. *φιλοῦμαι* 67; prs. middle 3 sg. *φιλεῖται* 67; prs. middle 3 pl. *φιλοῦνται* 67; prs. inf. middle *φιλεῖσθαι* 67
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φῶς n. ‘light’: nom.-acc. sg. *φῶς* 62, 65, 69, *φάος* Hom. 65
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5. Germanic

5.1. Proto-Germanic

**aganō* f. ‘chaff’: nom. sg. **aganō* 81
**ahanō* f. ‘chaff’: nom. sg. **ahanō* 81
**brōþōr* m. ‘brother’: nom. sg. **brōþōr* 75
**burþiz* f. ‘birth’: nom. sg. **burþiz* 82; gen. sg. **burdīz* / **-aiz* 82
**fadēr* m. ‘father’: nom. sg. **fadēr* 75
**gaburdiz* f. ‘birth’ 81
**gaburþiz* f. ‘birth’ 81
**hangistaz* m. ‘horse’ 81, 94
**hanhistaz* m. ‘horse’ 80, 94
**hasan-* m. ‘hare’ 82
**hazan-* m. ‘hare’ 82
**hlidan* n. ‘cover’ 81
**hliþan* n. ‘cover’ 81

**hunhruz* m. ‘hunger’: nom. sg. **hunhruz* 82; gen. sg. **hungrauz* 82
**mōdēr* f. ‘mother’: nom. sg. **mōdēr* 73
**tīhan-* vb. ‘show’ 82
**þringa-* vb. ‘throng’ 82
**þrinha-* vb. ‘throng’ 82
**wegan-* vb. ‘move’ 82
**werþan-* vb. ‘become’: prt. 1 sg. **warþa* 75; prt. 1 pl. **wurdume* 75
**wulfaz* m. ‘wolf’: nom. sg. **wulfaz* 84

5.2. Gothic
ahana f. ‘chaff’: nom. sg. *ahana* 81
ahtau num. ‘eight’ 76
broþar m. ‘brother’: nom. sg. *broþar* 75
fadar m. ‘father’: nom. sg. *fadar* 75
gabaúrþs f. ‘birth’: nom. sg. *gabaúrþs* 81
galeiko adv. ‘in the same manner’ 77, 78, 170
gateihan vb. ‘announce’: inf. *gateihan* 82
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haírto n. ‘heart’: nom.-acc. sg. *haírto* 77
ƕas pron. ‘who’: neut. instr. sg. *ƕe* 175
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sa pron. ‘this’: neut. instr. sg. *þe* 175
tuggo f. ‘tongue’: nom. sg. *tuggo* 77
þreihan vb. ‘throng’: inf. *þreihan* 82
wiljan vb. ‘want’: prs. 2 sg. *wileis* 78; prs. 3 sg. *wili* 78, 79

5.3. Old Norse
hestr m. ‘horse’: nom. sg. *hestr* 80
svefn m. ‘sleep’: nom. sg. *svefn* 93
vega vb. ‘fight’: inf. *vega* 82

5.4. Old English
guma m. ‘man’: nom. sg. *guma* 77
hara m. ‘hare’: nom. sg. *hara* 82
seada m. ‘heartburn’: nom. sg. *seada* 82
seaþa m. ‘heartburn’: nom. sg. *seaþa* 82
þringan vb. ‘press on’: inf. *þringan* 82, 83

5.5. Old High German
agana f. ‘chaff’: nom. sg. *agana* 81
giburt f. ‘birth’: nom. sg. *giburt* 81
gomo m. ‘man’: nom. sg. *gomo* 77
haso m. ‘hare’: nom. sg. *haso* 82
hengist m. ‘gelding’: nom. sg. *hengist* 80
hlid n. ‘cover’: nom.-acc. sg. *hlid* 81
(h)lit n. ‘cover’: nom.-acc. sg. *(h)lit* 81
tag m. ‘day’: instr. sg. *tagu* 175
zīhan vb. ‘accuse’: inf. *zīhan* 82

5.6. Middle High German
sōde m. ‘heartburn’: nom. sg. *sōde* 82
sōte m. ‘heartburn’: nom. sg. *sōte* 82

5.7. Old Saxon
gumo m. ‘man’: nom. sg. *gumo* 77
werthan vb. ‘become’: prt. 1 sg. *warth* 75; prt. 1 pl. *wurdun* 75

6. Latin
sedeō vb. ‘sit’: prs. 1 sg. *sedeō* 150
sopor m. ‘deep sleep’: nom. sg. *sopor* 93
vehō vb. ‘bear’: prs. 1 sg. *vehō* 150

7. Old Irish
car(a)e m. ‘friend’: nom.-acc. du. *car(a)it^{t}* 179

8. Armenian
ban ‘word’: instr. sg. *baniw* 176
k^{c}own ‘sleep’: nom. sg. *k^{c}own* 93
zgest ‘clothing’: instr. sg. *zgestu* 176

9. Chinese
bào^{l}chóu ‘revenge’ (noun and verb) 12
^{l}bàochóu ‘reward’ (noun and verb) 12
^{l}kètí ‘task’ 12
^{l}kètǐ ‘object’ 12

10. Japanese
/haši/ ‘bridge’ 12
/haši/ ‘edge’ 12
/wa/ topic marker 12